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Research report

Disability weights for suicidal thoughts and non-fatal suicide attempts

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ABSTRACT

Background: Although there are disability weights available for a wide range of health states, these do not include suicidality. This makes it difficult to evaluate the severity of suicidality in comparison with other health states. The aim of this study therefore is to estimate disability weights for suicidal thoughts and for mental distress involved in non-fatal suicide attempts.
Methods: A Dutch expert panel of sixteen medical practitioners who were knowledgeable about suicidality estimated disability weights (DWs) for twelve health states by interpolating them on a calibrated Visual Analogue Scale. The DWs for ten of these health states had been estimated in previous studies and were used to determine the external consistency of the panel. The other two concerned health states for suicidal thoughts and non-fatal suicide attempts. The resulting DWs could vary between 0 (best imaginable health state) and 1 (worst imaginable health state).
Results: Both internal (Cronbach's $\alpha = 0.98$) and external consistency of the panel were satisfactory. The DWs for suicidal thoughts and non-fatal suicide attempts were estimated to be 0.36 and 0.46 respectively.
Limitations: The panel was relatively small, which resulted in broad confidence intervals.
Conclusions: Suicidal thoughts are considered to be as disabling as alcohol dependence and severe asthma. The mental distress involved in non-fatal suicide attempts is thought to be comparable in disability to heroin dependence and initial stage Parkinson's. These results demonstrate the severity of suicidality.

1. Introduction

Suicidal behavior is a major public health problem worldwide. With approximately 1 million people dying by suicide each year it is among the leading causes of death, especially among those aged 15–44 years (Nock et al., 2008; WHO, 2008b). In the Netherlands, around 1500 people die by suicide each year (Statistics Netherlands, 2010). In addition, an estimated 99,600 suicide attempts occur each year (0.9% of the Dutch adult population) (Hoeymans and Schoemaker, 2010; Ten Have et al., 2006) About 14,000 (15%) of these persons attempting suicide are treated in an emergency room, of whom 9500 are admitted to a hospital (Kerkhof et al., 2007). Another 8200 attempts (9%) are treated by general physicians (Marquet et al., 2005). From these figures it becomes apparent that the majority of attempts (76%) remain untreated or do not warrant medical intervention. The year-prevalence of suicidal thoughts in the Netherlands is 3.2% (Ten Have et al., 2006), which amounts to approximately

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462,500 persons in a population of 16 million (Hoeymans and Schoemaker, 2010).

Suicidal thoughts and suicide attempts may occur in a number of psychiatric disorders. Psychological autopsy studies show that 90%–95% of people who die by suicide had a diagnosable psychiatric disorder at the time of the suicide (Cavanagh et al., 2003). The most prevalent diseases/conditions are depression, alcohol/substance use, psychotic disorders, impulse–control disorders, and personality disorders (Nock et al., 2008). While often perceived to be a symptom of psychiatric disorders, it has also been suggested that suicidality can be regarded as a separate syndrome or DSM-V axis (Ahrens and Linden, 1996; Oquendo et al., 2008). Core symptoms of this *suicidality syndrome* are hopelessness, ruminative thinking and social withdrawal (Ahrens and Linden, 1996).

More than mortality and prevalence alone, burden of disease has become an important indicator of a population's health. Burden of disease can be described as the impact of a health problem on the population measured by mortality and morbidity. It is most frequently quantified by Disability Adjusted Life Years (DALYs). DALYs express both the loss of healthy life years due to premature death (Years of Life Lost, YLL) and the loss of healthy life years due to disability (Years Lived with Disability, YLD). One DALY therefore represents the loss of the equivalent of 1 year in full health. YLD for a particular health state are estimated by multiplying the incidence of a health state by the average duration of the disease and the disability weight (DW). The DW is an index between 0 (best imaginable health state) and 1 (worst imaginable health state), which expresses the severity of the disability associated with a certain health state. The DALY is described in detail in Murray and Lopez (1996).

In general, DWs are estimated using an expert panel, a patient panel or a general public panel, dependent upon the perspective of the researchers and the aim of the study. In epidemiological studies, in which DALYs are used to compare population health, expert panels are often used to estimate DWs. In cost-effectiveness studies, patient or general public panels are more often used to estimate utilities (the complement of DWs) and calculate Quality Adjusted Life Years (QALYs) (Gold et al., 2002). Both DALYs and QALYs have underlying assumptions which are not without controversy, and methods to estimate DWs and utilities continue to be a point of discussion (Anand and Hanson, 1997; Brazier, 2008; Mont, 2007; Murray et al., 2000; Nord et al., 2009). The study described in this paper has been conducted from an epidemiological perspective and therefore focuses on DWs and DALYs, which is in line with previous studies that estimated DWs for health states (e.g. Mathers et al., 1999; Murray and Lopez, 1996).

Disability weights (DWs) have been estimated for many health states (Murray and Lopez, 1996; Stouthard et al., 1997; Stouthard et al., 2000; Vos et al., 2001), including *self-inflicted injuries* (DW = 0.447) (Mathers et al., 1999). For burden of disease studies, self-inflicted injuries have been defined as "suicide attempts, whether or not resulting in death" (Harvard Initiative for Global Health, 2009). In 2004, self-inflicted injuries represented 1.3% of the global burden of disease, which places them among the leading causes of disease burden worldwide (WHO, 2008a). In a recent six year follow-up study of a clinical sample of self-harm patients, Sinclair et al. (2010) conclude that in this group "mortality, morbidity and perceived quality of life (…) were significantly worse (…) than in the general population" (Sinclair et al., 2010, p. 250).

Suicidal thoughts are not included in the definition of self-inflicted injuries, but may contribute to the overall burden of suicidality. The first aim of this study therefore is to estimate the DW for suicidal thoughts. The second aim of this study is to estimate the DW for the mental distress involved in non-fatal suicide attempts.

2. Methods

2.1. Valuation procedure

The valuation procedure was carried out by mail with the help of an expert panel (see 'panel'). Each panelist received descriptions of twelve health states (see 'Health states') which they were asked to interpolate on a Visual Analogue Scale (VAS), ranging from 0 (worst imaginable health state) to 100 (best imaginable health state). For the interpolation, they were instructed to consider the consequences of living with the health state for 1 year, unless otherwise specified. The VAS has been formally calibrated with 16 health states in the Dutch disability weights study using the person trade off (PTO) method (Stouthard et al., 2000). The PTO method is the preferred method for estimating DWs for burden of disease studies since it attempts to measure social preference instead of individual preferences more directly than other methods (Nord, 1995). Since the PTO method is a relatively complex one, this study used the calibrated VAS to value health states. Panelists received the calibrated VAS and the corresponding descriptions of the 16 reference points. The original calibrated VAS has been published in Stouthard et al. (2000).

The interpolation on the VAS results in a value between 0 and 100 for each health state. Since 0 represents the worst imaginable health state and 100 the best imaginable health state, the interpolated values correspond to so-called *Utilities* on a scale from 0 to 1 (after dividing them by 100). A utility (U) relates to a DW as $DW = 1 - U$. In the Dutch disability weight study (Stouthard et al., 1997) utilities were published. In order to be able to compare our DWs to the utilities from Stouthard et al., these utilities were converted to DWs.

2.2. Panel

Members of the expert panel were selected on the basis of three criteria. First, panelists had to be experienced medical practitioners. This was required because they needed to value a wide range of medical conditions. Second, a background in research was required since understanding the concept and usefulness of the DALY is important when valuing health states. Finally, panelists needed to be knowledgeable about suicidality. Panelists were recruited through personal networks of the authors.

In total, 26 experts were invited to participate. Six of them indicated they were unable to take part in the study (mostly due to lack of time), and two could not be reached. The remaining 18 received the set of necessary documents.