



Does the relationship between health-related quality of life and subjective well-being change over time? An exploratory study among breast cancer patients



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ABSTRACT

It has been suggested recently that measures of Subjective Well-Being (SWB) instead of preferences could be employed to determine relative weights for the dimensions of health-related quality of life (HRQoL) with the aim of developing health utility indexes for economic evaluation purposes. In this context, this paper addresses the possibility of reprioritization response shift in SWB. It examines whether the association between dimensions of HRQoL and SWB changes over time in chronically ill patients. 215 women newly diagnosed for breast cancer in a French hospital between 2010 and 2012 completed the Satisfaction with Life Scale (SWLS) and the EORTC QLQ-C30 HRQoL questionnaires over a two-year period. We estimated hierarchical random coefficients models for the repeated SWLS measures while allowing for time-varying parameters for the scales of the QLQ-C30 to test for reprioritization. Our findings suggest that women adapt to breast cancer by giving greater weight over time to the social dimension of HRQoL. This possibility of reprioritization response shift should be considered in researches trying to develop SWB-based health utility values to inform the allocation of resources in health care.

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1. Introduction

Although health-related quality of life (HRQoL) is a multidimensional construct, economic evaluation methods require a single index measure to calculate Quality-Adjusted Life-Years (QALYs) for instance. The common approach to aggregate the various dimensions of HRQoL into a synthetic score follows the welfare economic principle of consumer sovereignty (Weinstein et al., 2009). It consists in assessing the preferences of the general population for hypothetical health states using the standard gamble or the time trade-off methods for instance. The obtained ratings are analysed by means of econometric techniques in order to derive relative weights for the dimensions of HRQoL by which the health states are described (Brazier et al., 2002; Chevalier and de Pouvourville, 2013; Dolan, 1997). The rationale for asking the public, rather than patients, is that the former finances the available health care (Gold, 1996). However, normative and positive arguments have been raised recently against this premise and in defence for an

alternative approach relying on information about Subjective Well-Being (SWB). SWB refers to various measures of a person's affective feelings and cognitive judgements about her life as a whole (Diener et al., 2002). It corresponds to assessments of an individual's condition according to her/his own personal view of what makes a life good (Pavot and Diener, 1993). On the normative side, the promotion of SWB is increasingly regarded as a valuable goal for public policy (Cummins and Lau, 2006; Diener et al., 2008; Layard, 2005; Veenhoven, 2002) and for resource allocation decisions in health care (Dolan et al., 2011; Dolan and White, 2007; Gandjour, 2001). On the empirical side, there is evidence that preferences over hypothetical health states do not adequately represent patients' SWB. One reason for this may be that healthy individuals do not anticipate the ability of patients to adapt to poor health (Dolan and Kahneman, 2007; Ubel et al., 2005). Some scholars thus suggest that measures of SWB instead of preferences could or should be employed to estimate relative weights for the dimensions of HRQoL in order to generate health states utility values (Dolan et al., 2009; Dolan and Metcalfe, 2012).

Some studies have investigated the relationship between dimensions of HRQoL and SWB. Overall, they show that SWB is strongly associated with aspects of mental health such as anxiety

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and depression and to a lesser extent with pain whereas physical health has relatively little impact or no impact on SWB (Cubi-Mollá et al., 2014; Dolan et al., 2012; Dolan and Fujiwara, 2014; Dolan and Metcalfe, 2012; Graham et al., 2011; Mukuria and Brazier, 2013; Wu et al., 2014). By contrast, preferences-based instruments such as the EQ-5D or the SF-6D for instance place important relative weights on physical health. Furthermore, a few studies have found evidence of partial hedonic adaptation with respect to health in the sense that the negative impact on SWB of repeated, such as heart condition (Wu, 2001), or durable health problems such as chronic disability (Oswald and Powdthavee, 2008) or chronic pain (McNamee and Mendolia, 2014), diminishes as time goes on. This raises the more general issue of whether the experience of illness may lead to changes over time in the way HRQol dimensions contribute to SWB. This possibility has been labelled reprioritization response shift in the literature, i.e. a change in the meaning of one's own evaluation of a construct such as SWB for instance (Sprangers and Schwartz, 1999). In the remaining of the paper, we employ the expression “response shift” to indicate a change in how various HRQol domains contribute to SWB although this expression also encompasses other phenomena such as scale recalibration. Reprioritization response shift needs to be investigated to understand the potential usefulness of SWB measures for the determination of health states utility values. However, to date most researches linking HRQol and SWB rely on observations from the general population not from patients or are cross-sectional studies so that the issue of response shift in SWB following illness remains understudied.

To the best of our knowledge, Lowy and Bernhard (2004) is the only study that has investigated reprioritization response shift with respect to dimensions of HRQol in patients' self-reported ratings of global quality of life (Bernhard et al., 2004; Lowy and Bernhard, 2004). In the literature, reprioritization response shift is defined and assessed as a change over time in the relative importance of a domain (e.g. a dimension of HRQol) with respect to a subjective construct (e.g. SWB) (Lix et al., 2013; Schwartz et al., 2013). Lowy and Bernhard (2004) proposed to investigate this possibility by estimating hierarchical random coefficients models that explain quality of life as a function of interaction variables combining the dimensions of HRQol with assessment times. The underlying idea is that a significant (time \times HRQol dimension) interaction variable indicates that the link between this dimension of HRQol and quality of life is not constant over time, which could be indicative of reprioritization in quality of life (Lowy and Bernhard, 2004). Lowy and Bernhard applied their approach to analyse repeated measures of quality of life in a sample of colon cancer patients. They found several significant time by HRQol dimension interaction variables. This finding seems to support the idea that in cancer patients the contribution of HRQol to quality of life varies over time (Bernhard et al., 2004). However, the study had a relatively short time horizon (a few months) so that it cannot be excluded that the changes identified are transitional. The purpose of the present paper is to examine whether the contribution of dimensions of HRQol to SWB may evolve in the long run in persons experiencing chronic illness. To this end, we apply the empirical strategy suggested by Lowy and Bernhard (2004) to study repeated measures of SWB in breast cancer patients over a two-year period following the diagnosis. The survival rates of women diagnosed for breast cancer are relatively high – mean age-standardized relative 5-years survival rate in women diagnosed between 2007 and 2012 is estimated at 82.9% in 15 European countries (OECD, 2014) – but women may have to cope with long term side-effects and sequelae (Stan et al., 2013). By examining whether experiencing breast cancer may affect the association between HRQol and SWB we aim at contributing to the emerging field of research interested in the possibility to derive

SWB-based health states utility values.

2. Methods

2.1. Survey and participants

Data were collected prospectively from women diagnosed with a stage I or II (non-metastatic) breast cancer in a French hospital. Women aged 18–70 years old diagnosed between January 2010 and June 2012 were invited to participate. Women who had another type of cancer in addition to breast cancer or who were at recurrence from breast cancer, who had a major depression or addiction problem and women who were under treatment for another chronic illness than breast cancer were not included. No selection criteria were applied regarding the type of treatment received. The study collected information only using self-administered paper questionnaires. A questionnaire was distributed to the participants at three occasions: within one month following the diagnosis of breast cancer, at one year and at two years from the diagnosis. The study's protocol received approval from the hospital's authorized ethical committee as is required for non-interventional studies in France. 215 women provided informed consent and completed the baseline questionnaire. No patients died during the study. There were only 8 and 7 missing questionnaires at one year and two years from the diagnosis respectively, due to participants who did not send back their questionnaires despite one phone call reminder.

2.2. Measures

The concept of SWB is commonly understood as encompassing three categories of measures (Dolan et al., 2011; OECD, 2013). Evaluative SWB corresponds to cognitive, reflective assessments of how satisfying life as a whole is. Experience or hedonic SWB refers to measures of emotional states that encompass ratings of positive and negative affect. Finally, eudemonic measures are concerned with judgements about the value of one's purposes in life and with feelings of self-realisation. In this study, we employ the Satisfaction With Life Scale (SWLS) a multi-item validated scale that assesses the cognitive part of SWB (Diener et al., 1985; Pavot and Diener, 1993). The SWLS consists in 5 statements such as “I am satisfied with my life” or “If I could live my life over, I would change almost nothing” for instance. Each statement is associated with a 7-level Likert response scale ranging from “strongly disagree” (value 1) to “strongly agree” (value 7). The response scores to the five statements are added together to provide a total score ranging from 5 (worst satisfaction level) to 35 (best level). We employ the French validated version of the SWLS (Blais et al., 1989). Measures of evaluative SWB seem more relevant to assess long-term changes in comparison with measures of affective SWB that are more short-term oriented (OECD, 2013). Eudemonic measures would also have been relevant for our purpose but there is no validated tool in French language exploring this form of SWB.

We chose the SWLS because it has already been used in cancer patients (Dunn et al., 2013; Llewellyn et al., 2008) and because multi-item questionnaires are regarded as more reliable measures of SWB than single-item questions (Krueger and Schkade, 2008). The SWLS contains two items that refer to the respondent's past situation. Questions about the past might seem inappropriate to study the possibility of response shift due to the person's current experience. Yet, after the onset of a chronic illness a person might change her/his mind about what should have been of value in her/his life. For instance, this person might regret not having paid enough attention to her/his social life. Then this would not only affect the way that person is satisfied with her/his present situation

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