CONSTRUCTION OF HEALTH INDICES USING PAIRED COMPARISONS

(Accepted 28 May 2003)

ABSTRACT. The paper discusses, by making use of past experiences in the area, the main issues and the methodology of developing a health status instrument for a developing country from a well-established instrument. The use of Thurstone’s model of paired comparisons in evaluating the relative importance of health symptoms has been reviewed and some alternative models, i.e., Linear, Exponential, and Information, are proposed. By applying the models to the health data of Chinese elderly persons, the three models have been demonstrated to be able to produce some valid and responsive health scores.

KEY WORDS: health index, paired comparison, scaling method

INTRODUCTION

Attempts have been made to utilize self-reported experience to measure subjective health status (Cox et al., 1992). Instruments on the subjective scale with different degrees of complexities have been developed and they all have an origin in developed countries (Bowling, 1997). The Sickness Impact Profile (SIP), for example, is a complicated instrument containing 136 items referring to illness-related dysfunction in 12 domains (Bergner et al., 1981). The Nottingham Health Profile (NHP) was developed in the UK. It utilizes 45 symptoms in 6 areas, namely, sleep, pain, energy, physical mobility, emotion and social isolation (Hunt et al., 1986). The Short-Form-36 (SF-36) health survey questionnaire has an origin in the USA. It measures 8 different dimensions of health, namely, physical functioning, role functioning, bodily pain, general health, vitality, mental health, emotional role limitations, social functioning and change in health status over the previous year. (Medical Outcomes Trust, 1993; Ware et al., 1992). These widely used health status instruments have been extending to other countries. The NHP, for
example, has been translated into various languages like Arabian (Mitchell et al., 1995), Spanish and Chinese (Mitchell et al., 1992). The SIP has been translated into Spanish (Badia et al., 1994). Efforts have been made to translate and to adapt the SF-36 in 15 countries (The IQOLA Project Team, 1994). Results of the applications have been reported in many countries, for example, in Australia (Pit et al., 1996) and in Israel (Shabati et al., 1997).

In view of the diversity of various instruments, there have been worries about the lack of commonality or uniformity in either its conceptualization or measurement of health status, and about the divergence of findings (Felce et al., 1993; Herzog et al., 1986). While it is doubtful if it is possible to have an universal health status instrument that can be applied to all elderly peoples with different cultural, political and economic backgrounds, attempts have been made to lay down the criteria for the acceptability of the instruments in terms of the content, method of administration, the extent of respondent burden, and the scaling method of the instrument (Editorial, International Journal of Geriatric Psychiatry 11, 1996).

Using the NHP as a basis, a Health Status Indicator (HSI) has been developed for the Chinese elderly in Hong Kong (Ip et al., 1999). As there are well-established and widely used health status instruments with proven validity and reliability, it would be a good strategy to use these instruments as a basis to develop the health status instruments for developing countries. In the simplest case, the newly developed health status instrument may be merely a direct translation from the original instrument. In other more complicated cases, a lot of modifications and adaptations may be needed. This paper aims to discuss, by making use of the experiences in developing the HSI and other similar exercises, the main issues and the methodology of developing a health status instrument for a developing country from a well-established instrument.

**CONTENT OF THE INSTRUMENT**

The term ‘developing countries’ is ambiguous. It constitutes a conglomerate of countries with differing peoples, cultures, political systems and economics. In this category of countries, the oil rich Gulf states are lumped together with poverty stricken sub-Saharan