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Using the RAND-36 in Community-dwelling Older Adults Leads to an Underestimation of Health-related Quality of Life

Aarts S[1*], Peek STM[1,2] and Wouters EJM[1]

[1]*School for Allied Health Professions, Health Innovations and Technology, Fontys University of Applied Sciences, The Netherlands*

[2]*Department of Tranzo, School of Social and Behavioral Sciences, Tilburg University, The Netherlands*

The overall health status of the population is often measured by the RAND-36 item Health Survey. In 2012, Fontys University and partners started a longitudinal field study in the Netherlands. This study is aimed at identifying factors that influence the use of technology by elderly individuals in order to increase independent living. A total of 50 participants aged 70 years or older, are interviewed every eight months, for a total of four years. In addition, participants are asked to fill in several questionnaires. One questionnaire that is, partly, included is the RAND-36, which comprised the Dutch version of the statement; "I am as healthy as anybody I know". Some participants, who find themselves *healthier* than other people they know, fill in an answer that indicates that they find themselves *less healthy* (e.g., "I am not as healthy as anybody, I am healthier so I will answer 'definitely false' "). Hence, the Dutch version of this RAND-36 statement can lead to an underestimation of the overall health status of Dutch older adults. It cannot be ruled out that this problem also occurs in other versions of the RAND-36, including the original, English version.

Health-Related Quality of Life (HRQoL) is extensively studied in order to assess and monitor health care outcomes in individuals. One of the most widely used surveys to assess HRQol is the RAND-36 item Health Survey, or the RAND-36 (i.e., RAND refers to the American research association 'Research and Development' that developed this questionnaire). This questionnaire is a shortened version of the RAND Health Insurance Study Questionnaire and is almost identical to the Short-Form-36 (SF-36); i.e., the two questionnaires differ only in scoring algorithm. The RAND-36 (the term this article will use to refer to the questionnaire) is a generic, multidimensional questionnaire, consisting of eight subscales; physical functioning, social functioning, role limitations (physical problems), role limitations (emotional problems), mental health, vitality, pain and general health perception [1,2]. An additional single item assesses change in perceived health during the previous 12 months. Physical and mental health summary scores can also be derived from these eight subscales.

Originally developed as a multipurpose health survey instrument, the RAND-36 has been translated in more than 50 languages and has become the most extensively validated and used instrument for assessing health-related quality of life [1,3,4]. The Dutch version of the RAND-36 is translated and validated by Van der Zee and Sanderman [5] and by Aaronson and colleagues [6]. (these two translations are almost identical and are also generally perceived as such). Dutch versions of the RAND-36 has been extensively employed, both in the general Dutch population as well as in various subpopulations, and are rendered as reliable, valid and sensitive measure for assessing health related quality of life. Additionally, the Dutch National institute for Public Health and the Environment (RIVM) mentions the RAND-36 as one of the most important primary instruments to assess HRQoL [7].

In 2012, Fontys University of Applied Sciences, in collaboration with thirteen local partners, initiated a longitudinal field study aimed at identifying factors that influence the use of technology that could support independent living by older adults ('aging-in-place') [8]. In this study, 50 community-dwelling participants (70 years and older) are visited every eight months within a period of 4 years, in their own dwelling. Currently, all participants have been visited three times. In order to guarantee continuity and to promote familiarity, two researchers are present during each visit. The main part of the study consists of semi-structured interviews regarding factors that influence technology acceptance and (sustained) use thereof. Additionally, some background information is gathered using a structured survey which contains questions regarding the health status of the participant, the presence of chronic conditions and the occurrence of influential life events. As a part of this structured survey two items from the RAND-36 are administrated. These two items have been added solely in order to describe the HRQoL of participants; there were not intended for quantitative analyses.

The structured survey, including the two RAND-36 items (i.e., item 1 and 11b, both of which are part of the subscale 'general health perception'; see addendum for the Dutch as well as the English version of the items [4]), is administered orally. However, since participants may have hearing trouble, the participants are also enabled to read the items. Upon hearing and/or reading the Dutch version of item 11b, several participants spontaneously emphasized that they feel *healthier* than their peers. As a consequence, some participants subsequently choose an answer that suggests that they feel *less healthy* than their peers. When asked, these participants state that they do not agree with the statement because they consider themselves healthier than others, and not 'as healthy as'. This particular item is part of the subscale 'general health perceptions' which is part of a total of five items. When a person perceives one's health as excellent, and responds to each of these items accordingly, a score of 100 is achieved. However, when a person answers this particular item negatively (i.e. answer possibility 'definitely false'), a score of *only* 80 is achieved.

Since, in general, the RAND-36 is used in total (i.e, all 36 items) to operationalize HRQoL, the consequences of the abovementioned problem might be profound. However, this problem might only become apparent when researchers are aware of the health related opinions and feelings of the participants. Since the RAND-36 is a written examination, researchers are, in general, unaware of the opinions and feelings of those who fill in the questionnaire. In addition, this problem might especially occur when the RAND-36 is filled in by older adults. The interviews revealed that, in congruence with the current literature [9,10], older adults compare themselves with peers in poor health. Research also highlights that older people take other aspects of health

***Corresponding author:** Sil Aarts, PhD, Fontys University of Applied Sciences, Health Innovations and Technology, Dominee Theodor Fliednerstraat 2, 5631 BN Eindhoven, Eindhoven, The Netherlands, Tel: +31 622739813; E-mail: s.aarts@fontys.nl

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in their judgment than younger people [10]. Since younger people are less likely to know peers in poor health (as a higher age associated with a decrease in health, it is possible that younger people are less likely to compare themselves with peers in poor health.

We presented both the Dutch as well as the English items to four linguists (two native English linguist and two native Dutch linguist; respectively, 23, 48, 61 and 75 years old;). They were asked how they would interpret both items and what answer they would fill in, should they perceive their health as 'excellent'. It appeared that the Dutch version of the item yielded the most ambiguity: "*If I feel healthier than those around me, I do not entirely agree or disagree with the statement. However, there's a caveat here; it also depends on the people I know*" [female 23 years]. "*If I perceive my health as excellent, I would answer "I do not know" or "incorrect", reasoning that I'm in better shape than most older people I know. This question seems to approach health 'from below', as if the starting point is unhealthy*" [female, 61 years]. However, problems regarding the English item were also mentioned: "*I would interpret this question in the same way as the Dutch variant"*, [female, 23 years], *"I implicitly read the word 'just' so to form the words 'just as healthy as' "*, [male, 48 years].

We recommend to further explore this observation when using the RAND-36 questionnaire. This phenomenon should be further investigated in large groups of older adults; their views on their own health, operationalized by an open ended question postulated in a (semi)-structured interview, should be compared with their answer to the particular item of the RAND-36. Apart from the Dutch version, this should also be done for other language versions of the RAND-36. In addition, further research is necessary to explore if our findings are more common in older then in younger populations. Depending on these results, the item of the RAND-36 should be revised. The Dutch version of the item can easily be adjusted by including the Dutch word 'minstens' which means as much as 'at least'. These latter two words can, if found necessary after further research, be used to transform the Engels version of the item (i.e., "I am at least as healthy as anybody I know"). By these, rather small, changes the answer categories of this item (and item 11a, 11c and 1d) can be left unchanged. Meanwhile, it is important to compare the results of item 11b with other, comparable items of the RAND-36 (e.g. item 11a: 'I seem to get sick a little easier than other people'). By doing so, it can be prevented that the use of the RAND-36 leads to an underestimation of HRQoL.

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Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

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References

1. Hays RD, Sherbourne CD, Mazel RM (1993) The RAND 36-Item Health Survey 1.0. Health Econ 2: 217-227.
2. Ware JE Jr, Sherbourne CD (1992) The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. Med Care 30: 473-483.
3. Contopoulos-Ioannidis DG, Karvouni A, Kouri I, Ioannidis JP (2009) Reporting and interpretation of SF-36 outcomes in randomised trials: systematic review. BMJ 338: a3006.
4. Hays RD, Morales LS (2001) The RAND-36 measure of health-related quality of life. Ann Med 33: 350-357.
5. van der Zee K, Sanderman R (2012) The measurement of the overall health with the RAND- 36, a manual. UMCG /University of Groningen.
6. Aaronson NK, Acquadro C, Alonso J, Apolone G, Bucquet D, Bullinger M, et al. (1992) International Quality of Life Assessment (IQOLA) Project Quality of life research. Qual Life Res 1: 349-351.
7. Peek STM, Nieboer M, Rijnaard MD, van der Voort C, Aarts S, et al. (2013) Why do older adults own and use technology? Preliminary results from a longitudinal qualitative study. Ambient Assisted Living (AAL) Forum, Eindhoven,The Netherlands.
8. Cheng ST, Fung H, Chan A (2007) Maintaining self-rated health through social comparison in old age. J Gerontol B Psychol Sci Soc Sci 62: 277-285.
9. Friedman HS (2012) The Oxford Handbook of Health Psychology: Oxford University Press.
10. Rowe JW, Kahn RL (1987) Human aging: usual and successful. Science 237: 143-149.