A New Short Generic Measurement of Health Status

Measuring Generic Health with the Minimum European Health Module

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Extended Abstract

Research Interest, Framework, and Objectives

Self-rated health (SRH) is the most widely used single-indicator of health in many scientific disciplines (Jylhä 2009). Even though more comprehensive approaches to measure generic health exist, they are often too time consuming for survey interviews, especially in multi-thematic surveys, due to time limitations. Even though SRH is consequently routinely used to measure or control for generic health, the question "How would you rate your health?" alone might leave (too) much room for interpretation for respondents and even bias. Research in this regard has shown that, even when controlling for comprehensive health information, SRH is noticeably and independently influenced by non-health factors like satisfaction with life or social participation (e.g., Lazarevič 2018). While these results illustrate that health ratings are influenced by non-health factors, the personality traits that are assumed to bias SRH (e.g., optimism, social desirability, or hypochondriasis) are typically not directly measured.

The Minimum European Health Module (MEHM), as proposed by Robine & Jagger (2003), complements SRH with the questions whether the respondent suffers from a chronic disease and whether and to what extent they are limited in their usual activities due to a health problem. Thus, MEHM can be seen as a compromise between using SRH as a single-indicator and a comprehensive scale while covering the two most relevant factors for health ratings, i.e., chronic diseases and the functional status (Lazarevič 2018). While MEHM is obviously less time- and cost-intensive than more comprehensive approaches to measure health and there was some research done on its components separately (e.g., Berger et al. 2015), hardly anything is known about its usefulness as a short-scale of generic health, its overall psychometric properties, and its susceptibility to non-health factors potentially biasing the health measurement.

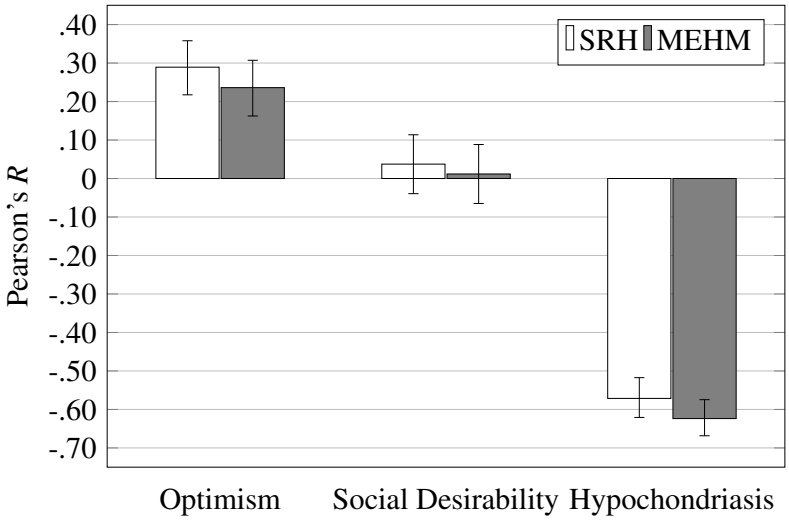
In this extended abstract, we show preliminary results from our project that examines the utility of using MEHM to measure generic health. To this end, we (1) tested the

feasibility of combining the three items of MEHM to a factor score using confirmatory factor analysis, (2) compared the susceptibility of both SRH alone and the factor score based on MEHM to optimism, social desirability, and hypochondriasis, and (3) examined MEHM's external validity by comparing age effects on health via SRH and MEHM.

Selected Preliminary Results

The data used here were collected by Statistik Austria in May and June 2018 via online surveys specifically for this purpose. The underlying random sample was drawn from the central population register of Austria and comprises respondents aged 16–74. Due to item-nonresponse, we were able to use data from 681 of all 703 respondents (97%). Cronbach's alpha for all four used scales was: MEHM: 0.87[1], optimism: 0.80, social desirability: 0.55, and hypochondriasis: 0.88. Cronbach's alpha did not increase for any scale if any one item was removed from it. All alphas except for the social desirability scale indicate a very good internal consistency – especially considering the low number of items in all scales (two to six items per scale). Alpha for the social desirability scale can still be deemed acceptable due the use of latent variable methods in the following analyses (Kline 2011, p. 70). For all three scales comprised of more than two items, we performed confirmatory factor analyses (CFA) based on polychoric correlations. All factor analyses resulted in a single factor with an eigenvalue > 1 with the expected direction of factor loadings which we then extracted for further analyses. For the two-item scale of optimism the mean of both variables was taken. In order to facilitate a comparison of SRH and the factor score based on MEHM, we standardized both measures to a mean of 0 and a standard deviation of 1.

Figure 1: Correlations of Biasing Aspects and Health Measures (95% CI)



[1]For MEHM, Cronbach's alpha was calculated based on polychoric and polyserial correlations due to binary and ordinal nature of its items. The regular (naïve) Cronbach's alpha (i.e., based on Pearson's r) for MEHM was 0.74.

Figure 2: Comparison of Mean Health by Age Group (95% CI)

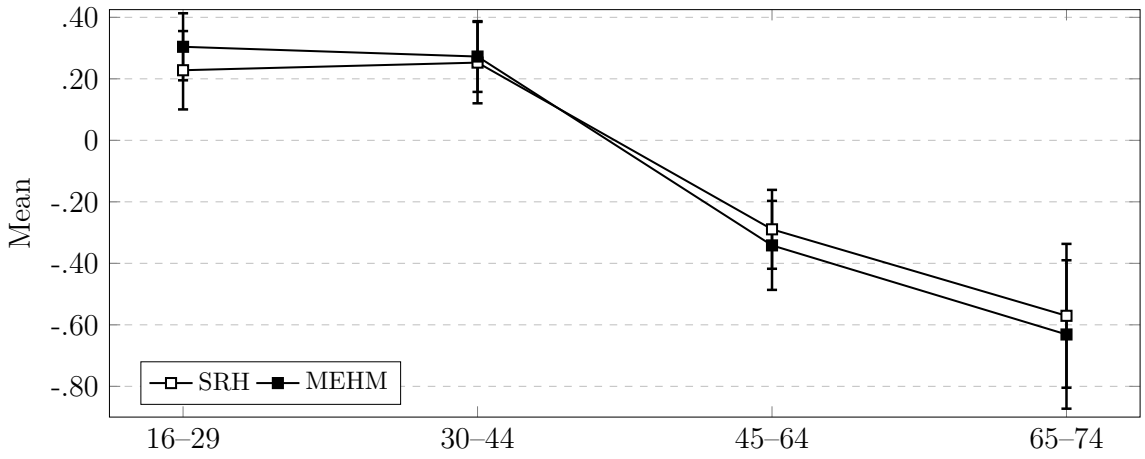


Figure 1 shows the correlations of the three potentially biasing factors, i.e., optimism, social desirability, and hypochondriasis, and the two health measures, MEHM and SRH alone. We found the expected correlations for optimism and hypochondriasis with both health measures which were very high for the latter. The correlation between health-reporting and social desirability was rather low. There were no significant differences between SRH and MEHM in the correlations but tendencies towards a lower correlation of MEHM with optimism and social desirability while it was higher with hypochondriasis. The latter might be explained by real correlation of the hypochondriasis with health. This is corroborated by higher hypochondriasis means of all 'unhealthy' groups in all three MEHM-items (i.e., those with fair or poor SRH, chronic diseases, or activity limitations (not shown). Control of more comprehensive health information would be desirable to investigate the isolated influence of hypochondriasis.

Figure 2 shows the mean health score by age group. Taking SRH as a benchmark, the MEHM-score indicates a slightly better health for younger respondents (< 45 years) while the opposite is true for older respondents. Even though these differences are not statistically significant, they point to a slightly less biased measurement of the MEHM-based score since older respondents tend to be more optimistic in their health reports than their younger counterparts (Layes et al. 2012).

Discussion

Taken together, our results show that generic health measurement via MEHM generally works. MEHM exhibits good psychometric properties and a CFA based on polychoric correlations resulted in a usable single-indicator of generic health. This indicator somewhat reduces the influence of optimism and social desirable responding on health measurement, suggesting it is less susceptible to these biases. However, these differences were, in part due to the relatively low number of cases, not significant. The influence of hypochondriasis was, while also not being significant, greater in MEHM than SRH alone. This might

reflect a correlation of this scale with health demonstrating the necessity of controlling for health when examining the relation of health-reports and hypochondriasis. Further research on the comparison of a MEHM-based health measurement for different subgroups and with other approaches promises to shed more light on its utility for a short generic health measurement.

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