

## Letter to the Editor

### **Correlates of self-rated health in adult Pakistani population**

Madam, there are no studies reporting on self-rated health on an ordinal scale in the South Asian context. Self-rated health determined on an ordinal scale has been empirically shown to be statistically significant predictors of healthcare utilization and future morbidity burden.<sup>1-2</sup> A previous study using logistic regression by dichotomizing self-reported health into just two categories, did not utilize the inherent nature of ordered responses to this question.<sup>3</sup> Furthermore it was a model-based rather than the design-based analysis, as we report in this letter. A model-based analysis, as opposed to design-based analysis, does not take into account the clustered sampling design that was used for the NHSP.

To describe, age, gender, and residency status associated with self-rated health and its percentages in adult Pakistanis, we used data from the National Health Survey of Pakistan (NHSP) 1990-94; with written permission from the federal Ministry of Health, Islamabad. We selected all the adults aged 20 years and older who responded to the question "Would you say your health in general is excellent, very good, good, fair or poor?" Individuals responding as excellent, very good or good were grouped together owing to very small number of responses in either excellent or very good categories. A two-stage stratified sample design was adopted for NHSP.<sup>4</sup> Design-based analysis with SUDAAN 9.01 was done using ordinal regression (cumulative logit model) and adjusted Odds Ratios (aOR) were computed for the association of self-rated health and the demographic attributes studied.

The percentage of adults reporting their health in general as either excellent to good was 31.52% and Standard Error (SE) was 3.15, while 36.46% (SE 1.38) adults reported as fair and 32.03% (SE 2.61) reported as poor (n = 7735). The approximate likelihood-ratio test of proportionality of odds across response categories (p-value = 0.14) and Brant test of parallel regression assumption (p-value = 0.084) were used to assess the adequacy of proportional odds assumption in STATA 9, and was satisfied. Adjusting for other variables present in the model, women were more likely to rate their health as good, very good or excellent (aOR = 0.23; 95% CI: 0.17, 0.31) compared to men. Compared to adults in the 60 and above age group, adults in the 20 - 29 age group were much less likely to rate their health as good to excellent (aOR = 3.79; 95% CI: 3.14, 4.57). A clear age gradient was observed, as adults in the age group 30 - 39 (aOR = 2.66; 95% CI: 2.24, 3.17), 40 - 49 (aOR = 1.82; 95% CI: 1.52, 2.18), and 50 - 59 (aOR = 1.64; 95% CI: 1.38, 1.94) were also less likely to rate their health as being good

to excellent. However this relationship becoming less pronounced as age increased by each decade. No statistically significant association was found between the residency status in terms of either urban or rural and the self-rated health.

The results of this unique nationally representative survey, demonstrate that women were more likely to rate their health as good, very good, or excellent. Young adults were less likely to report their health as good, very good, or excellent; however, with increasing age the strength of association between rating one's health as less likely to be good to excellent also decreased but remained statistically significant. A possible explanation for this inverse relationship between increasing age and less dissatisfaction with one's health status could be the fact that with increasing age one becomes more content and appreciative of small things in life. However, this observation needs to be interpreted with the caveat that NHSP is a cross sectional survey and as such, does not render itself to disaggregate the cohort effect from the age effect. On the other hand women in particular and older adults in general may have the attitude of accepting illnesses and/or deteriorating health as a norm; hence missing out on what modern medicine has to offer in terms of improving the quality of life. The percent of population rating their health as fair to poor was 68.49% in Pakistan, which is substantially higher than the United States i.e. 14.5%.<sup>5</sup> Primary care physicians in Pakistan need to keep their index of suspicion high when dealing with this population subgroup and perhaps probe for signs and symptoms more aggressively to identify any nascent medical conditions for their better management and prognosis.

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#### **References**

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