

Establishing Validity of EQ-5D-3L (Tagalog) to Measure Health-Related Quality of Life States among Adult Filipinos (20-50 years old)

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ABSTRACT

Objective. To establish the validity of EQ-5D-3L in Tagalog language in assessing health-related quality of life states among adult Filipinos 20-50 years old.

Methods. A face-to-face cross-sectional community survey of apparently healthy adult Filipinos (20-50 years old) in Metro Manila and in 4 nearby provinces (Bulacan, Batangas, Quezon, Rizal) was conducted. Trained interviewers administered the Tagalog language versions of EuroQoL 5-Dimension 3 Levels (EQ-5D-3L), Short-Form 36 version 2 (SF-26v2[®]), and a socio-economic questionnaire. All questionnaires were pre-tested for cultural appropriateness. Concurrent validity (against the SF-36v2[®]) and known group validity of the EQ-5D-3L were evaluated.

Results. Complete data from 3,056 participants were analyzed. Almost half of the participants reported perfect health on EQ-5D-3L and had higher scores on all SF-36v2[®] domains compared to those who reported some problems on EQ-5D-3L. Compared to participants who reported some problems on EQ-5D-3L mobility (or anxiety/depression), participants who reported no problem on EQ-5D-3L mobility (or anxiety/depression) reported lower SF-36v2[®] Physical Functioning (or Mental Health) scores (differences of 7.1 and 10 points, respectively) that were minimally important (i.e. exceeds 5 points). Participants with poorer self-reported health had considerably lower EQ-5D index scores and EQ-5D VAS scores ($p < 0.05$) irrespective of their socio-demographic characteristics.

Conclusion. EQ-5D-3L (Tagalog) demonstrated construct and known groups validity among adult Filipinos (20-50 years old).

Key Words: Philippines, patient reported outcome measures, validity, EuroQoL 5-dimension (Tagalog), Short Form 36v2[®] (Tagalog)

INTRODUCTION

Patient-reported outcomes (PROs) are an increasingly important aspect in patient management. PROs (such as the EuroQoL-5D) encompass the patient's description of a health condition and its treatment; and attempt to capture a snapshot of a person's functioning and well-being (physical, social, and psychological) at a specific point in time. EuroQoL-5D (EQ-5D) is a generic preference-based measure of health-related quality of life (HRQoL), which is

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extensively utilized in health research (surveys, clinical trials, economic evaluation, observational studies). Decisions on patient management and health policy can be better informed with the incorporation of patient insights on HRQoL. Population reference data/norms can also be generated for EQ-5D, thus allowing comparisons of self-rated health to be made between a patient with a particular disorder vis-à-vis that of an average individual of comparable sex and/or age from the general population.^{1,2}

EQ-5D-3L describes health-related quality of life states. The scale has 5 components (mobility, self-care, usual activities, pain/discomfort, and anxiety/depression), and each component/dimension can register 3 degrees of gravity (no problems, some or moderate problems, and extreme problems) within a specific EQ-5D component. The 2-part EQ-5D instrument has: (1) a descriptive profile which describes a distinctive state of health by assessing 5 dimensions of HRQoL including a person's ability to get around (mobility), to take care of her/himself (self-care), perform usual activities, and presence/absence of pain/discomfort, anxiety/depression; and (2) a visual analogue scale (VAS) which generates a single index value for health status from the respondent's perspective. The VAS is a standardized vertical scale (akin to a thermometer) ranging from 0 the 'worst imaginable state' to 100 the 'best imaginable state'. Individuals are asked to draw a line on the scale which matches their quantitative self-rating of their present state of health. Initially, EQ-5D had a 3-level version (now known as EQ-5D-3L) with 3 levels of severity (no problems, some problems, and extreme problems). This evolved in 2011 to a 5-level version (EQ-5D-5L) with 5 levels of severity (no problems, slight problems, moderate problems, severe problems, and extreme problems).^{3,4}

There are 5 language versions of EQ-5D-3L (English, Tagalog, Cebuano, Hiligaynon, and Ilocano) which are currently available.⁵ EQ-5D has been used in international clinical trials on various diseases (diabetes, cancer, arthritis, respiratory diseases, stroke, anemia, hepatitis B, Alzheimer's disease)⁶⁻⁹ as well as other HRQoL research projects (lupus, urinary incontinence, cataract surgery, cancer, disasters) in the Philippines.⁶⁻¹¹ It is important to validate measurement scales (such as EQ-5D-3L) as a specific construct which originated from another culture and setting may not have the same meaning, nuances in all contexts such as that of Filipinos. To the best of our knowledge there has been no study yet which has reported on the validity of EQ-5D-3L (Tagalog) among apparently healthy adult Filipinos (20-50 years old) in a community-based setting.

MATERIALS AND METHODS

Sample

We conducted a cross-sectional community survey of apparently healthy adult Filipinos aged 20-50 years old from 62 mostly rural *barangays* (villages) located in

Metro Manila and 4 nearby provinces (Bulacan, Batangas, Quezon, and Rizal). Convenience sampling was used to select municipalities (towns); resource constraints of the project as well as accessibility and local peace and order situation were taken into consideration. Local officials were consulted for the selection of 8 barangays per town. The chosen barangays should have varying socio-economic and ecological conditions (e.g., rural and urban; lowland and upland; etc.). Tagalog was the major language spoken in the study sites. We excluded from the study those who planned to leave the community within the next 5 years, pregnant and lactating women, and those with history of cardiovascular diseases (e.g., myocardial infarction, stroke, and peripheral arterial disease) and malignancies. Informed written consent was obtained from participants, and the study was approved by the institutional review boards of the University of the Philippines Manila and the Cardinal Santos Medical Center.¹²⁻¹⁶ This study was part of the international LIFECourse study in CARdiovascular disease Epidemiology (LIFECARE).¹⁷

Measures

The Tagalog language version of EQ-5D-3L was translated to English, and then, independently back-translated to Tagalog. As a further check, the English language version of EQ-5D-3L underwent a similar process of translation and back-translation but this time from English to Tagalog and back. The study team compared both Tagalog and English language versions of EQ-5D-3L and their respective back translations. The existing official EQ-5D-3L Tagalog version was then deemed ready for further evaluation. Pre-testing and cognitive interviews (formal and informal) were then done to check for any difficult words and phrases as well as to elicit feedback about EQ-5D-3L (Tagalog). No revisions to the original questionnaire were needed except that participants thought it was appropriate to incorporate "*po*" in the instructions to make it more polite and this was similar to what was done for the validation of SF-26v2.¹⁶

Information on participants' socioeconomic and demographic background; medical history; consumption of alcohol and cigarettes; as well as experience of stress were elicited from participants.

There was no available value set for EQ-5D-3L (Tagalog). Value sets are a way of weighting (i.e., assigning greater or lesser importance of an item) to summary data of study participants. Parkin, Rice and Devlin (2010) argued that weights are an external cause of variance and thus, can affect information on health profiles, and can change results about the importance of differences in health status between groups or over time. They further added that there was no group of weights which is unbiased/impartial in its effect on the assessment of the significance of changes. These caveats were taken into consideration and in the authors' assessment the U.S. scoring appeared to work well with SF-36 and SF-

12,¹⁶ and consequently it was decided that the U.S. preference weights could be used to compute the EQ-5D utility scores as the equivalent for the Philippines was not available at the time of the study. In addition to EQ-5D-3L (Tagalog), the Short-Form 36 version 2 (SF-36v2[®]) in Tagalog was also administered to the same participants for the purpose of evaluating concurrent validity; and to also help address the limitations posed by having no value set for EQ-5D-3L (Tagalog). The SF-36v2[®] (Tagalog) was chosen as the best available benchmark that could be used to compare EQ-5D-3L as the aforementioned tool has been reported to be a valid and reliable instrument for measuring health status among residents of 2 cities in the Philippines which are also part of the study areas for LIFECARE Philippines.¹⁷ There were 36 items in the SF-36v2[®] (Tagalog) which assessed eight health domains: Physical Functioning (PF), Role Physical (RP), Bodily Pain (BP), General Health (GH), Vitality (VT), Social Functioning (SF), Role Emotional (RE), and Mental Health (MH). The higher the score was to 100, the better the health status of the respondent.

Both EQ-5D-3L and SF-36v2[®] were designed to be self-completed by participants but due to anticipated literacy problems we chose to administer both instruments

via face-to-face interviews which were conducted by trained field interviewers. We also used cue cards to further aid the respondent in understanding the questions and response options which were read out aloud during the interviews.

Data Analysis

Variables such as age, sex, civil status, educational attainment, employment status, rural or urban residence, smoking, alcohol intake, stress, and most common self-reported medical conditions were analyzed using descriptive statistics.

We assessed two aspects of construct validity, namely concurrent validity and known group validity. To assess concurrent validity, we posited that, in general, participants reporting some or severe problems in one or more EQ-5D dimensions would have lower mean SF-36v2[®] summary scores than those for participants reporting perfect health (i.e., reporting no problems for any EQ-5D dimension). To assess known groups validity, it was hypothesized that: Older people, females, not married, with low level of education, urban residents, those who had experienced stress in the past year, and those with medical conditions were expected to have lower EQ-5D index scores. There was

Table 1. Comparison of EQ-5D index and VAS scores for subgroups of participants with differing socio-demographic characteristics (n = 3,056)

	N	%	EQ-5D index score ^a		EQ-VAS score ^a	
			Mean (SD)	Median (25 th - 75 th Percentile)	Mean (SD)	Median (25 th - 75 th Percentile)
Full sample	3,056		0.898 (0.111)	0.860 (0.827 - 1)	81.7 (13.9)	80.0 (75.0 - 90.0)
Age						
20-29	855	28.0	0.898 (0.113)	0.860 (0.827 - 1)	81.2 (13.6)	80.0 (71.0 - 90.0)
30-39	1,097	35.9	0.904 (0.109)	1.000 (0.827 - 1)	81.2 (14.3)	80.0 (71.0 - 90.0)
40-50	1,104	36.1	0.892 (0.112)	0.844 (0.827 - 1)	82.4 (13.8)	80.0 (80.0 - 90.0)
p value				0.0268		0.087
Sex						
Male	1,323	43.3	0.906 (0.110)	1.000 (0.827 - 1)	82.0 (13.8)	81.0 (75.0 - 90.0)
Female	1,733	56.7	0.892 (0.112)	0.844 (0.827 - 1)	81.4 (14.0)	80.0 (71.0 - 90.0)
p value				<0.0001		0.212
Civil status						
Married/living with partner	2,355	77.1	0.897 (0.112)	0.860 (0.827 - 1)	81.7 (14.0)	80.0 (75.0 - 90.0)
Not married	701	22.9	0.900 (0.108)	0.860 (0.827 - 1)	81.4 (13.6)	80.0 (75.0 - 90.0)
p value				0.625		0.462
Education						
High education ^b	796	26.0	0.892 (0.113)	0.844 (0.827 - 1)	82.1 (12.8)	81.0 (78.5 - 90.0)
Low education	2,260	74.0	0.900 (0.111)	0.860 (0.827 - 1)	81.5 (14.3)	80.0 (73.0 - 90.0)
p value				0.095		0.822
Geographical Location						
Urban	813	26.6	0.883 (0.121)	0.844 (0.810 - 1)	80.4 (14.8)	80.0 (70.0 - 90.0)
Rural	2,243	73.4	0.903 (0.107)	1.000 (0.827 - 1)	82.1 (13.6)	81.0 (75.0 - 90.0)
p value				0.0001		0.018
Occurrence of stress (in the past year)						
Never	518	16.9	0.934 (0.100)	1.000 (0.827 - 1)	84.4 (14.0)	90.0 (80.0 - 95.0)
Some periods	2,071	67.8	0.900 (0.108)	0.860 (0.827 - 1)	81.9 (13.4)	80.0 (75.0 - 90.0)
Several Periods	369	12.1	0.848 (0.122)	0.827 (0.800 - 1)	77.6 (15.2)	80.0 (70.0 - 90.0)
Permanent	98	3.2	0.840 (0.101)	0.827 (0.800 - 0.854)	77.1 (15.1)	80.0 (70.0 - 90.0)
p value				0.0001		0.0001

^a Group comparison using Mann-Whitney U test. ^b High education consists of participants who attained at least college level of education.

also the assumption that with a growing number of chronic conditions and worse self-reported overall health there would be a deterioration of EQ-5D-3L index scores.

Non-parametric analyses (Mann-Whitney U-test for two groups, *p value* <0.0001; and Kruskal-Wallis test for more than two groups, *p value* <0.05) were performed as the distribution of the scores are non-normal. Stata 10 for Windows® (STATA CORP LP1, College Station, Texas, USA) was used for data analyses.

RESULTS AND DISCUSSION

Only data from 3,056 participants of the 3,072 individuals enrolled in the LIFECARE Philippines study were included in this report due to missing EQ-5D-3L and SF-36v2® data. Most participants were 30 years and older, married, were employed, were literate, had at least high school level of education, and resided in rural *barangays* (Table 1).

Only one-sixth of participants (16.9%) said that they had never experienced stress in the past year. Fifty-six percent said that they experienced moderate level of financial stress. The mean EQ-5D index score was 0.898 (SD=0.111) and the median was 0.86 (IQR=0.827to1) while the mean EQ-VAS score was 81.7 (SD=13.9) and the median was 80.0 (IQR=75.0to90.0), Poorer HRQoL

was manifested in considerably lower EQ-5D index scores among those who experienced permanent stress in the past year; were urban residents, female, older. Civil status and education had no effect on the EQ-5D index scores. EQ-VAS scores were only considerably lower for those living in urban area and those who experienced permanent stress in the past year (Table 1).

Nearly half (48.46%) of participants had an EQ-5D index score of 1 (perfect health) thus resulting in the EQ-5D index having a substantial ceiling effect (Table 2). Participants who did not identify any problems for any of the 5 dimensions of EQ-5D-3L had higher scores for SF-36v2® on all domains as compared to those who identified some or severe problems. Compared to participants who reported some problems on EQ-5D-3L mobility, participants who reported no problem on EQ-5D-3L mobility reported lower SF-36v2® Physical Functioning (PF) scores (differences of 7.1) that were minimally important (i.e. exceeds 5 points). Similarly, compared to participants who reported some problems on EQ-5D-3L anxiety/depression, participants who reported no problem on EQ-5D-3L anxiety/depression reported lower SF-36v2® Mental Health (MH) scores (differences of 10 points) that were minimally important (Table 2).

The 4 most common medical conditions reported by the participants were allergies, asthma, kidney disease, and

Table 2. Median SF-36v2 norm-based scores for participants with and without problems on individual EQ-5D dimensions

EQ-5D Dimension	N (%)	PF	RP	BP	GH	VT	SF	RE	MH
Mobility (MO)									
No problems	2,698 (88.3)	53.1	53.7	47.8	52.1	49.9	48.6	51.5	51.1
With problems ^a	358 (11.7)	46.0	44.0	43.0	45.2	45.9	45.3	47.4	44.4
Difference ^b		-7.1	-9.7	-4.8	-6.9	-4.0	-3.3	-4.1	-6.7
Usual activities (UA)									
No problems	2,732 (89.4)	53.1	53.7	47.8	52.1	49.9	48.6	51.5	51.1
With problems ^a	324 (10.6)	46.0	40.7	43.0	46.3	45.9	41.9	43.2	44.4
Difference ^b		-7.1	-13.0	-4.8	-5.8	-4.0	-6.7	-8.3	-6.7
Self-care (SC)									
No problems	3,003 (98.3)	53.1	53.7	47.8	52.1	49.9	48.6	51.5	51.1
With problems ^a	53 (1.7)	42.5	37.5	42.5	43.4	41.9	41.9	43.2	41.1
Difference ^b		-10.6	-16.2	-5.3	-8.7	-8.0	-6.7	-8.3	-10.0
Pain/discomfort (PD)									
No problems	1,841 (60.2)	53.1	53.7	52.6	52.1	53.9	48.6	55.7	51.1
With problems ^a	1,215 (39.8)	49.6	47.2	47.3	46.3	45.9	48.6	47.4	47.8
Difference ^b		-3.5	-6.5	-5.3	-5.8	-8.0	0	-8.3	-3.3
Anxiety/depression (AD)									
No problems	2,357 (77.1)	53.1	53.7	47.8	52.1	49.9	48.6	55.7	54.4
With problems ^a	699 (22.9)	49.6	44.0	47.3	46.3	45.9	48.6	43.2	44.4
Difference ^b		-3.5	-9.7	-0.5	-5.8	-4.0	0	-12.5	-10.0
EQ-5D index score									
Perfect health ^c	1,481 (48.46)	53.1	57.0	52.6	53.8	53.9	52.4	55.7	54.4
No perfect health ^d		49.6	47.2	47.3	48.0	45.9	48.6	47.4	47.8
Difference ^b	1,575 (51.54)	-3.5	-9.8	-5.3	-5.8	-8.0	-3.8	-8.3	-6.6

Legend: PF - Physical functioning, RP - Role limitations due to Physical health (role-physical), BP - Bodily Pain, GH - General Health perceptions, VT - Vitality, SF - Social Functioning, RE - Role limitations due to Emotional problems (role-emotional), MH - Mental Health.

^a Consists of participants reporting some and severe problems. The numbers of participants with severe problems on the EQ- 5D were 7, 22, and 20 for UA, PD, and AD, respectively.

^b Group comparisons using Mann-Whitney U test; all *p values* were <0.0001.

^c Perfect health refers to an EQ-5D index score of 1.

^d No perfect health refers to an EQ-5D index score < 1.

Table 3. Comparison of EQ-5D index and VAS scores for subgroups of participants with past medical conditions*

	N	%	EQ-5D Index score ^a		EQ-VA score ^a	
			Mean (SD)	Median (25 th - 75 th percentile)	Mean (SD)	Median (25 th - 75 th percentile)
Seizures	51	1.7	0.880 (0.136)	0.844 (0.810 - 1)	79.7 (12.6)	80.0 (71.0 - 90.0)
Without	3,003		0.898 (0.111)	0.860 (0.827 - 1)	81.7 (13.9)	80.0 (75.0 - 90.0)
<i>p</i> value				0.385		0.207
Asthma	238	7.9	0.880 (0.112)	0.844 (0.825 - 1)	78.7 (12.6)	80.0 (70.0 - 90.0)
Without	2,816		0.899 (0.111)	0.860 (0.827 - 1)	81.9 (14.0)	81.0 (75.0 - 90.0)
<i>p</i> value				0.010		<0.0001
Allergy	354	11.6	0.872 (0.117)	0.827 (0.810 - 1)	79.1 (14.2)	80.0 (70.0 - 90.0)
Without	2,700		0.901 (0.110)	0.860 (0.827 - 1)	82.0 (13.8)	81.0 (75.0 - 90.0)
<i>p</i> value				<0.0001		0.0001
Kidney disease	47	1.5	0.897 (0.100)	0.844 (0.800 - 1)	82.1 (12.6)	80.0 (71.0 - 90.0)
Without	3007		0.898 (0.112)	0.860 (0.827 - 1)	81.7 (13.9)	80.0 (75.0 - 90.0)
<i>p</i> value				0.425		0.902
Liver disease	83	2.7	0.879 (0.101)	0.827 (0.827 - 1)	78.9 (12.9)	80.0 (70.0 - 90.0)
Without	2971		0.898 (0.112)	0.860 (0.827 - 1)	81.8 (13.9)	80.0 (75.0 - 90.0)
<i>p</i> value				0.108		0.027
Goiter	113	3.7	0.869 (0.126)	0.827 (0.810 - 1)	79.1 (15.0)	80.0 (70.0 - 90.0)
Without	2,941		0.899 (0.111)	0.860 (0.827 - 1)	81.8 (13.8)	80.0 (75.0 - 90.0)
<i>p</i> value				0.012		0.060
Arthritis	166	5.4	0.854 (0.113)	0.827 (0.800 - 1)	80.4 (14.5)	80.0 (71.0 - 90.0)
Without	2,888		0.900 (0.111)	0.860 (0.827 - 1)	81.8 (13.9)	80.0 (75.0 - 90.0)
<i>p</i> value				<0.0001		0.2111
Tuberculosis	104	3.4	0.874 (0.121)	0.839 (0.810 - 1)	78.3 (14.8)	80.0 (70.0 - 90.0)
Without	2,950		0.899 (0.111)	0.860 (0.827 - 1)	81.8 (13.9)	80.0 (75.0 - 90.0)
<i>p</i> value				0.048		0.008
Diabetes	58	1.9	0.864 (0.126)	0.827 (0.800 - 1)	76.5 (16.2)	80.0 (70.0 - 90.0)
Without	2,995		0.899 (0.111)	0.860 (0.827 - 1)	81.8 (13.8)	80.0 (75.0 - 90.0)
<i>p</i> value				0.021		0.009

*from 14 medical conditions (past medical history) as reported by participants.

^a Group comparison for both EQ-5D index and EQ-5D VAS scores using Mann-Whitney U test.

arthritis. Participants with asthma (0.880 vs. 0.899), allergy (0.872 vs. 0.901), goiter (0.869 vs. 0.899), arthritis (0.854 vs. 0.900), tuberculosis (0.874 vs. 0.899), diabetes (0.864 vs. 0.899) had considerably lower mean EQ-5D index scores ($p < 0.05$). EQ-VAS scores were only significant for those who had asthma, allergy, liver disease, tuberculosis, and diabetes (Table 3). Participants with poorer self-reported health had considerably lower EQ-5D index scores and EQ-5DVAS scores ($p < 0.05$) irrespective of their socio-demographic characteristics (Table 4).

Variations in the cultural notions as well as experiences of and coping with health and illness occur across cultures. Thus, the transferability of generic preference-based measures of health-related quality of life such as EQ-5D-3L across cultures cannot be assumed²⁰. The construct validity of EQ-5D-3L (Tagalog) among apparently healthy adult Filipinos (and *not* among patients with a particular disease) in a community-based setting was established as most of the stated hypotheses for this study were confirmed.

We acknowledge the limitations of this study. First, using value sets from other countries is limited by the fact that there are differences in cultural values, socio-economic and demographic profiles. There is a need to establish Filipino preference weights to enable comparisons of Filipino EQ-5D-3L index scores across different groups (patients with

specific diseases, apparently healthy children, and older adults) in the country. Second, this study population was not representative of the general Filipino population as it was confined to those aged 20-50 years old, were apparently healthy, and who resided in Tagalog-speaking areas.

CONCLUSION

This study has established the validity of the EQ-5D-3L (Tagalog) for assessing health-related quality of life states among apparently healthy, Tagalog speaking, urban and rural adults (20-50 years old); and not just among Filipinos who are ill.

Ethical approval

The study was approved by the institutional review boards of the University of the Philippines Manila and the Cardinal Santos Medical Center. 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. This article does not contain any studies with animals performed by any of the authors.

Table 4. Comparison of EQ-5D index and VAS scores for subgroups of participants with differing self-reported health

	N	EQ-5D index score ^a		EQ-VAS score ^a	
		Mean (SD)	Median (25 th - 75 th percentile)	Mean (SD)	Median (25 th - 75 th percentile)
Males					
Excellent	152	0.949 (0.086)	1.000 (0.854 - 1)	89.2 (8.8)	90.0 (80.0 - 98.0)
Good	847	0.919 (0.101)	1.000 (0.827 - 1)	83.6 (13.0)	85.0 (80.0 - 90.0)
Fair	318	0.854 (0.117)	0.827 (0.800 - 1)	75.0 (14.4)	80.0 (68.0 - 85.0)
Poor	6	0.671 (0.271)	0.736 (0.436 - 0.843)	56.3 (21.6)	50.0 (43.0 - 80.0)
<i>p value</i>			0.0001		0.0001
Females					
Excellent	222	0.920 (0.110)	1.000 (0.827 - 1)	87.6 (13.4)	90.0 (80.0 - 99.0)
Good	1,075	0.908 (0.105)	1.000 (0.827 - 1)	82.7 (12.6)	81.0 (80.0 - 90.0)
Fair	433	0.838 (0.111)	0.827 (0.800 - 0.860)	75.1 (15.2)	80.0 (70.0 - 85.0)
Poor	3	0.827 (0.000)	0.827 (0.827 - 0.827)	67.0 (14.7)	70.0 (51.0 - 80.0)
<i>p value</i>			0.0001		0.0001
High education					
Excellent	157	0.926 (0.108)	1.000 (0.827 - 1)	88.0 (11.5)	90.0 (80.0 - 95.0)
Good	494	0.897 (0.106)	0.844 (0.827 - 1)	82.8 (11.4)	81.0 (80.0 - 90.0)
Fair	145	0.836 (0.121)	0.827 (0.800 - 0.860)	73.4 (14.2)	76.0 (70.0 - 80.0)
Poor	-				
<i>p value</i>			0.0001		0.0001
Low education					
Excellent	217	0.936 (0.097)	1.000 (0.844 - 1)	88.4 (12.0)	90.0 (80.0 - 100.0)
Good	1,428	0.918 (0.102)	1.000 (0.827 - 1)	83.2 (13.2)	85.0 (80.0 - 90.0)
Fair	606	0.847 (0.112)	0.827 (0.800 - 1)	75.5 (15.0)	80.0 (70.0 - 89.0)
Poor	9	0.723 (0.228)	0.827 (0.671 - 0.827)	59.9 (19.3)	51.0 (50.0 - 80.0)
<i>p value</i>			0.0001		0.0001
Urban					
Excellent	128	0.938 (0.096)	1.000 (0.830 - 1)	87.3 (13.9)	90.0 (80.0 - 96.5)
Good	461	0.900 (0.111)	0.860 (0.827 - 1)	82.5 (13.3)	85.0 (80.0 - 90.0)
Fair	222	0.821 (0.121)	0.816 (0.767 - 0.844)	72.6 (14.3)	75.0 (60.0 - 80.0)
Poor	2	0.472 (0.281)	0.472 (0.273 - 0.671)	40.0 (14.1)	40.0 (30.0 - 50.0)
<i>p value</i>			0.0001		0.0001
Rural					
Excellent	246	0.928 (0.105)	1.000 (0.833 - 1)	88.7 (10.5)	90.0 (80.0 - 99.0)
Good	1,461	0.917 (0.101)	1.000 (0.827 - 1)	83.2 (12.6)	85.0 (80.0 - 90.0)
Fair	529	0.855 (0.109)	0.827 (0.800 - 1)	76.1 (14.9)	80.0 (70.0 - 90.0)
Poor	7	0.794 (0.171)	0.827 (0.800 - 0.843)	65.6 (17.2)	70.0 (50.0 - 80.0)
<i>p value</i>			0.0001		0.0001

^a Group comparisons for both EQ-5D index and EQ-5D VAS scores using Kruskal-Wallis test.

Informed consent

Written informed consent was obtained from all individual participants included in the study.

Statement of Authorship

All authors have approved the final version submitted.

Author Disclosure

All the authors declared no conflicts of interest.

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Authors' contributions

NTCC involved in data collection and wrote the manuscript. OTS involved in data collection, analyzed the data and reviewed the manuscript. HW helped in interpretation of the results, and in writing the manuscript. RGS and EST obtained the funding, designed and supervised the study and reviewed the manuscript. EJBL, FERP, PFMR, AWGG and FVV involved in data collection,

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