Quality of life predictors and normative data

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Abstract

Purpose: Identify predictors and normative data for quality of life (QOL) in a sample of Portuguese adults from general population

Methods: A cross-sectional correlational study was undertaken with two hundred and fifty-five (N=255) individuals from Portuguese general population (mean age 43yrs, range 25-84yrs; 148 females, 107 males). Participants completed the European Portuguese version of the World Health Organization Quality of Life short-form instrument (WHOQOL-Bref) and the European Portuguese version of the Center for Epidemiologic Studies Depression Scale (CES-D). Demographic information was also collected.

Results: Portuguese adults reported their QOL as good. The physical, psychological and environmental domains predicted 44% of the variance of QOL. The strongest predictor was the physical domain and the weakest was social relationships. Age, educational level, socioeconomic status and emotional status were significantly correlated with QOL and explained 25% of the variance of QOL. The strongest predictor of QOL was emotional status followed by education and age. QOL was significantly different according to: marital status; living place (mainland or islands); type of cohabitants; occupation; health.

Conclusions: The sample of adults from general Portuguese population reported high levels of QOL. The life domain that better explained QOL was the physical domain. Among other variables, emotional status best predicted QOL. Further variables influenced overall QOL. These findings inform our understanding on adults from Portuguese general population QOL 2 and can be helpful for researchers and practitioners using this assessment tool to compare their results with normative data.

Keywords
Quality of life, predictors, Portuguese general population, WHOQOL-Bref

Introduction
Quality of Life (QOL) is a construct of increasing interest among members of the scientific community. It is a multidimensional and holistic concept defined by World Health Organization (WHO) as an individual's perception of the position in life in the context of the culture and value system where people live, and in relation to their goals, expectations, standards and concerns

[1]. Theoretically it incorporates all the significant areas of life that allow people to achieve their goals and satisfy their needs at different levels and is influenced by complex combinations of values, expectations and perceptions [1-5]. It is recongised that there is a need to improve people's satisfaction with life as well as the effectiveness of health, social and community services provided and that all these aspects may result in a better QOL of the populations [2; 4; 6]. Since QOL is such a subjective concept, it is important to study it in various populations [3; 4; 7-13].

Adult participants in population studies usually classify their overall QOL as moderate or good [11; 13] and variables such as age, health, education, marital status, living place, employment and emotional status influence the QOL of general population [11; 14; 15]. Usually, as age increases, QOL decreases, especially the physical health-related QOL domain [11; 15; 16]. However, a Portuguese study with people aged 25 to 50 years, reported no significant differences according to age [17] although this may be influenced by the limited age range. Regarding gender, women usually report higher scores of QOL [12], but recent studies reported no statistical significant differences [17-19], including one with Portuguese population [17]. People with higher levels of education report higher levels of QOL or higher levels of QOL's domains [15; 20] and people living in rural areas describe their QOL more positively than people living in the inner city [21]. Being married or living with a partner is a status associated to better QOL, as well as being employed [12]. No Portuguese data is available on these variables. Healthy groups generally report significantly better QOL than those with long-term diseases or health problems [12; 15] and depressive symptoms are 3 associated to lower levels of QOL [8; 22; 23]. These findings for overall health and emotional health were also observed for Portuguese people [23-25].

The areas of life considered for QOL and most referred to by the general population as important/most satisfied are: social relationships; activities and participation; physical; environment; psychological [19; 22; 26-30]. The studies with Portuguese individuals report different results; the domains with the highest scores (in a descending order) are: physical; psychological; social relationships; environment [23]. This suggests different levels of satisfaction with life areas when compared to other populations.

Quality of life research and the results mentioned above are highly relevant to professionals and disciplines involved with health conditions and disabilities. It helps to understand and determine whether such health conditions or disabilities have an impact on quality of life of those individuals and to determine which treatments are more effective and improve the most people's satisfaction with life. In order to do that it is necessary to access the broad base of quality of life research conducted with normal or healthy living members of the general population. This data is available for some populations concerning different ages (children, adolescents, adults and elders), and different nationalities and cultures (e.g., American, European, and Asian) [7-11; 16; 31], but regarding Portuguese population, little information is available on QOL normative data [17; 23-25]. This information is very important, since it defines a baseline to determine whether the QOL of the individuals is within the standards expected for their group, helping to understand the scores in clinical settings and to provide adequate treatments and policies [12].

As shown previously, variables such as overall QOL, QOL domains, age, gender, education, marital status, living place, employment, emotional status, and health are usually studied in QOL research and many of them are associated to QOL [11; 12; 14-19; 21-25; 31]. Regarding Portuguese general population, the studies available report the psychometric properties of the instruments used and little information is given about QOL predictors or normative data [17; 23-25]. Correlations are calculated for age, gender emotional status and health, but normative data is only known for healthy and unhealthy groups [17; 23-25]. Therefore, normative data of Portuguese general population's QOL is lacking in literature, as well as the study of the association with more variables to QOL, and more detailed information about these

associations. The predictors of QOL and normative data may be used to improve the effectiveness of social, community and health services. Clinicians will better understand the 4 impact of the disability or of other variables in people's lives allowing them to deliver better services focused on patients' real needs [2-4].

This study reports specific information on QOL predictors and normative data of a sample of Portuguese general population for many variables, contributing to the overall landscape of published research in this area.

Method

Study design and data collection

Ethical approval was given by an independent Ethics Committee to perform this cross-sectional correlational study. A sample of 255 individuals participated in this research. The inclusion criteria were: to be Portuguese; to live in Portugal; to have 25 years of age or more. There is no data available in Portugal to determine the representativeness of a sample with these characteristics, but it is a close match to total Portuguese population regarding gender (47.78% of males and 52.22% of females in Portugal) and mean age (Portuguese mean age is 41.8 years) [32]. The percentage of the participants from the Portuguese islands is over-represented in the sample when compared to total Portuguese population proportions (95.13% of Portuguese population live in mainland and 4.87% in the islands)[32].

The sample sizes required for high values of tests power and minimal effect sizes were calculated with the G*Power 3.5.1. tool (See Table 1).

Table 1: Sample size for minimum effect sizes and high test power

Test	Power	Alpha	Effect size	Sample size
Correlation	0.95	0.05	0.10	1077
Qui-square	0.95	0.05	0.10	2359
Regression	0.95	0.05	0.02	934

For the same standard of power, the effect sizes detected using the sample collected are small for correlation and regression and medium for Chi-square (See Table 2).

Table 2: Effect size for a sample of 255 and high test power

Test	Sample	Power	Alpha	Effect size
Correlation	255	0.95	0.05	0.20
Chi-square	255	0.95	0.05	0.30
Regression	255	0.95	0.05	0.07

All the 255 subjects completed the European Portuguese version of the World Health Organization Quality of Life short-form instrument (WHOQOL-Bref) [23], the European Portuguese version of the Center for Epidemiologic Studies Depression Scale (CES-D, [33]) and a demographic data sheet. They were recruited by a snowball sampling technique. Our first round was composed of 37 people (primary seeds) from all the 11 Portuguese regions (Minho, Trás-os-Montes, Douro Litoral, Beira Alta, Beira Baixa, Beira Litoral, Ribatejo, Estremadura, Alto Alentejo, Baixo Altentejo, and Algarve) and the 2 islands (Açores and Madeira). Three primary seeds were identified per region and were asked to participate in the study. Some were not living at that moment in the region or were not able to participate. Questionnaires were distributed in envelopes personally or by post to authors' own acquaintances who agreed to participate and they were asked to distribute the questionnaires to other people they knew who

met the inclusion criteria. The questionnaires were returned personally or by post in sealed envelopes.
Five hundred and forty (540) questionnaires were distributed and 313 were returned (58% response rate). From those 58 questionnaires were discounted for their missing data according to WHO criteria.

Measures
The World Health Organization Quality of Life Scale – Bref version (WHOQOL-Bref)
The WHOQOL-Bref has good to excellent psychometric properties [11; 20; 23; 27; 29; 34-40]. It is a self-administered instrument, although interviewer-assisted administration is allowed when necessary [41]. It is available in more than 40 languages, cross-culturally comparable [11], comprehensive, and sensitive to the various domains of QOL, has cultural relevance, and uses a subjective assessment approach [41; 42]. This cross-cultural perspective allows comparisons of diverse populations in various cultural settings and countries. The guidelines used in the development of the WHOQOL instruments allow comparisons between cultures and also between different services or treatments and longitudinal studies of interventions with less risk of bias [43; 44]. The WHOQOL-Bref also includes the environment and the interactions between the people and the environment, features which have not been specifically emphasised in the development of many other QOL assessments [41; 45].
This instrument is composed by 26 items and has a 4-factor structure: physical domain; psychological domain; social relationships; environment. The WHOQOL-Bref contains one item from each of the 24 facets of WHOQOL-100 (the instrument that led to WHOQO-Bref) and two additional items intended as indicators of overall QOL [23; 24; 41]. All the questions of the WHOQOL-Bref are rated in a 5-point Likert scale and the scores are transformed into a 0-100 scale. Twenty-four of the items are scored and calculated to yield the four domains and overall QOL results from the remaining two questions. All the domains are scored separately. It includes questions such as: “How would you rate your quality of life?”; “To what extent do you feel your life to be meaningful?”; “How satisfied are you with your personal relationships?”. The score of each question is between 1 and 5. The higher the score, the better the QOL or the satisfaction with life domains [41].

Some demographic data is also collected by this instrument, such as age, gender, educational level, marital status, profession, living place and health status [23]. In our study, a questionnaire was used to collect additional sociodemographic data regarding occupation, cohabitation and socioeconomic status.
The Center for Epidemiologic Studies Depression Scale (CES-D)
The CES-D is a self-report depression scale originally designed to measure the frequency of depressive symptoms in general population [46]. It is widely used [47-49] and its psychometric properties are good [33; 46; 49]. It asks about the frequency of symptoms felt in the last week through questions like: “I felt that I could not shake off the blues even with help from my family or friends”; “I felt that everything I did was an effort”; “I felt lonely”. It is composed of 20 items that are scored in a 4-point Likert scale scored between 0 and 3. The total score may range from 0 to 60 and the cut-off point is 20. The higher the score, the greater the frequency of depressive symptoms [33; 46]. In this research, the version used was the 20 items Portuguese version [33].
Statistical Analysis
Data was analysed using SPSS 16.0 for Windows. As the WHOQOL-Bref scale is ordinal and the results of QOL are based on the responses of two questions (both in a 5-point Likert scale), non-parametric tests were used whenever possible. Spearman’s rho coefficient and its corresponding test were used to measure the correlation between QOL and: age; level of education; number of cohabitants; socioeconomic status; emotional status. The Chi-square test was used to evaluate the association between QOL and gender and the Kruskal-Wallis test was

used to identify possible differences of QOL according to: living place; marital status; type of cohabitants; occupation; health status. A regression analysis (stepwise method) was undertaken to identify which variables better explained overall QOL.

It is well known that non-parametric tests have less power than the corresponding parametric ones, but when the relevant parametric alternatives were calculated, the conclusions were the same. Since in the context of this study non-parametric tests are more appropriate, due to the ordinal nature of the data, only these results are shown.

Results

Participants were aged 25 to 84 years, with a mean age of 43 years. The majority of the participants was female (58%), was employed (81%), was married or lived with a partner (69%), self-reported as healthy (90.6%), and in terms of education, the mode response was university level education (37%). The mean for emotional status of Portuguese general population sample was 12.38±8.10 (see Table 3).

Table 3: Demographic data (N = 255)

		Range	Mean ± SD
Age		25 - 84	42.65 ± 12.51
		n	Percentage (%)
Gender	Male	107	41.96
	Female	148	58.04
Educational level	Illiterate	3	1.17
	1-4 years	16	6.27
	5-6 years	14	5.49
	7-9 years	33	12.94
	10-12 years	68	26.67
	University	94	36.86
	Postgraduate	27	10.59
Occupation	Employed	209	81.96
	Unemployed	22	8.63
	Retired	24	9.41
Living Place	Mainland	212	83.14
	Islands	43	16.86
Marital status	Single	48	18.82
	Married/Partner	176	69.02
	Separated/Divorced	22	8.63
	Widow/widower	9	3.53
Number of cohabitants	Alone	24	9.41
	1	79	30.98
	2	70	27.45
	3	66	25.88
	4	12	4.71
	5	4	1.57
Type of cohabitants	Alone	24	9.4
	Partner	66	25.9
	Partner & Children	103	40.4
	Parent(s)	23	9.0
	Other	39	15.3
Socioeconomic status	High	53	20.78
	Medium-high	97	38.04
	Medium	51	20
	Medium-low	32	12.55
	Low	22	8.63
Health*	Unhealthy	24	9.41
	Healthy	231	90.59

* Healthy and unhealthy statuses were determined by people responding to the WHOQOL-Bref's question "Are you currently ill?"; illness = unhealthy.

In general, participants considered their QOL as good (mean QOL = 71.81) and scored highest in the physical domain, followed by psychological, social relationships and environmental domains (see Table 4).

Table 4: Overall QOL and domains' means

	N	Range	Mean	Std. Deviation
Overall QOL	255	25-100	71.81	14.85
Physical domain	255	17.86-100	76.09	13.49
Psychological domain	255	20.83-100	74.44	13.35
Social relationships domain	255	33.33-100	73.69	15.28
Environmental domain	255	34.38-100	66.30	12.04

Overall QOL had a weak but significant correlation with age (ρ=-0.265; p=0.000), educational level (ρ=0.333; p=0.000), socioeconomic status (ρ=-0.141; p=0.024), and emotional status (ρ=-0.337; p=0.000). Younger people had better QOL, as well as people with higher levels of education, higher socioeconomic status and better emotional status. The number of cohabitants (ρ=0.015; p=0.817) and gender (χ_2= 0.745) did not correlate with overall QOL There were significant differences of QOL according to living place, marital status, type of cohabitants, occupation and health status (see Table 5). **Table 5:** Kruskal-Wallis for Overall QOL and Livin.

Table 5: Kruskal-Wallis for Overall QOL and Living place, marital status, type of cohabitants, occupation and health

		Overall QOL
Living place	Chi-Square	8.088
	Df	1
	Asymp. Sig.	0.004
Marital Status	Chi-Square	17.905
	Df	5
	Asymp. Sig.	0.003
Type of cohabitants	Chi-Square	9.75
	Df	4
	Asymp. Sig.	0.045
Occupation	Chi-Square	7.049
	Df	2
	Asymp. Sig.	0.029
Health	Chi-Square	29.436
	Df	1
	Asymp. Sig.	0.000

The reader will also note on Table 6 that, although there is no gender correlation with QOL, females had better QOL results than males. The group age with better QOL was the youngest (24-44 years). People with better emotional health also had higher QOL means. People with postgraduate educational level had better QOL than the other educational level groups. Regarding socioeconomic status, the group designated as "High" had the best overall QOL scores and those with "Low" socioeconomic status had the worst QOL (see Table 6).

Single people had better overall QOL than the other marital status groups (see Table 6). People living with parents showed better overall QOL scores. People living on the islands had better QOL than those who lived on the mainland. The other groups had quite similar scores for means. People who were employed had better QOL than unemployed and retired participants. Retired individuals had the worst or lowest QOL. Healthy people had much better QOL scores than the unhealthy group (See table 6).

Regarding QOL domains, the physical domain had the highest scores among almost all groups and the environment the lowest. Psychological domain was scored the highest for males; for participants with 7 to 9 years of education/schooling; for those separated/divorced; those living with partner; and those retired. The social relationships domain was scored the highest for illiterate and unhealthy groups; and the physical domain was scored the lowest by these same two sub-groups (see Table 6).

Table 6: Overall QOL and domains' descriptive data

			Overall QOL		Physical Domain		Psychological Domain		Social Domain		Environmental Domain	
		n	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Gender	Male	107	71.38	15.83	75.57	14.98	**76.25**	12.36	72.74	15.76	*66.06*	12.74
	Female	148	72.13	14.14	**76.47**	12.35	73.14	13.92	74.38	14.94	*66.47*	11.55
Age	25-44 (years)	150	73.58	14.95	**77.24**	12.92	75.31	12.86	75.00	15.02	*66.67*	12.84
	45-64 (years)	90	71.11	13.07	**75.63**	12.41	74.49	13.34	72.59	15.16	*65.94*	10.82
	64-84 (years)	15	58.33	17.47	**67.38**	21.21	65.56	15.79	67.22	17.39	*64.79*	11.23
Emotional Health	Good	210	73.33	14.32	**78.03**	12.69	77.44	10.93	76.31	13.22	*67.74*	11.51
	Depressive Symptoms	45	64.72	15.38	**67.06**	13.62	60.46	14.77	61.48	18.23	*59.58*	12.33
Educational level	Illiterate	3	37.50	17.68	*41.07*	32.83	43.75	2.95	**58.33**	35.36	50.00	13.26
	1-4 years	16	64.84	13.09	**72.32**	13.71	66.93	10.70	66.15	14.10	*65.63*	7.82
	5-6 years	14	58.93	20.47	69.90	14.61	**73.21**	13.45	70.24	11.65	*60.71*	10.59
	7-9 years	33	68.94	14.70	73.70	14.28	**73.99**	9.32	72.47	14.66	*62.50*	12.40
	10-12 years	68	70.77	14.74	**76.58**	12.38	74.57	16.10	73.65	16.39	*64.75*	12.03
	University	94	75.00	12.02	**77.28**	13.09	75.18	12.57	75.09	15.29	*68.18*	73.03
	Postgraduate	27	80.09	12.62	**82.01**	9.37	79.48	10.40	77.47	13.04	*73.03*	11.83
Socioeconomic status	High	53	72.41	15.18	**76.95**	12.44	75.08	14.09	74.21	16.53	*70.17*	12.55
	Medium-high	97	74.23	12.34	**77.47**	13.01	76.07	12.94	75.34	14.28	*67.40*	12.29
	Medium	51	71.57	15.43	**76.19**	13.71	74.67	14.19	73.86	14.14	*64.71*	10.50
	Medium-low	32	68.75	13.85	**74.00**	13.85	72.92	13.05	73.18	16.50	*62.89*	10.93
	Low	22	64.77	16.33	**70.78**	16.33	67.42	9.93	65.53	15.91	*60.80*	11.64
Marital status	Single	48	79.43	13.76	**80.28**	12.39	76.13	12.89	74.83	16.80	*67.58*	14.51
	Married/Partner	176	70.17	14.57	**75.14**	13.12	73.67	13.52	73.25	14.95	*65.45*	11.37
	Separated/Divorced	22	69.89	16.21	75.00	17.36	**78.98**	12.43	75.76	16.04	*69.32*	12.30
	Widower	9	68.06	11.02	**75.00**	13.95	69.44	12.84	71.30	12.58	*68.75*	9.11
Type of cohabitants	Alone	24,00	71.88	14.86	**78.57**	16.08	75.35	13.23	78.47	15.13	*70.05*	11.40
	Partner	66,00	70.64	14.12	74.57	15.00	**74.62**	14.11	73.74	15.90	*68.28*	11.99
	Partner & Children	103,00	70.27	14.12	**74.90**	12.15	73.58	12.38	72.49	14.47	*63.96*	11.22
	Parent(s)	23,00	80.98	14.04	**81.83**	14.12	78.99	13.32	78.62	13.01	*71.06*	13.98
	Other	39,00	72.44	17.01	**76.92**	11.47	73.18	14.62	70.94	16.98	*64.02*	11.99
Living Place	Mainland	212	70.70	14.80	**75.02**	13.63	73.51	13.01	72.80	15.23	*65.83*	11.97
	Islands	43	77.33	13.98	**81.40**	11.55	79.07	14.19	78.10	14.89	*68.60*	12.25
Occupation	Employed	209	72.97	14.41	**76.95**	12.46	75.30	13.14	74.96	14.58	*66.58*	12.20
	Unemployed	22	69.32	14.80	**76.30**	15.29	72.54	13.53	68.56	19.40	*63.49*	10.58
	Retired	24	64.06	16.61	68.45	18.08	**68.75**	13.96	67.36	15.13	*66.41*	11.99
Health	Unhealthy	24	55.21	15.60	*56.10*	13.91	66.84	16.09	**70.83**	20.71	62.89	13.77
	Healthy	231	73.54	13.69	**78.17**	11.65	75.23	12.82	73.99	14.63	*66.65*	11.82

For overall QOL minimum and maximum underlined.

Across all domains and for each subgroup (male, female, ..., parent(s), other) *minimum* values in italic and **maximum** values in bold.

Among age, emotional status, educational level, and socioeconomic status, emotional status was the best predictor of QOL, explaining 13% of the variance of QOL results. This variable, along with educational level and age, altogether, explained 25% of overall QOL results. In the presence of these variables, socioeconomic status was not considered a good predictor of QOL (see table 7).

Table 7: Demographic predictors of overall QOL

Linear Regression			ANOVA		
Model	R	R Square	df	F	Sig.
1	0.358a	0.128	1; 253	37.281	0.000
2	0.475b	0.226	2; 252	36.741	0.000
3	0.500c	0.25	3; 251	27.840	0.000

a. Predictors: (Constant), Emotional status

b. Predictors: (Constant), Emotional status, Education level

c. Predictors: (Constant), Emotional status, Education level, Age

Regarding the QOL domains, the physical domain best predicts overall QOL variance, followed by psychological and environmental domain. Together, these domains explained 44% of the variance in overall QOL results. Social relationships domain was not considered a significant predictor (see table 8).

Table 8: QOL domains predictors of overall QOL

Linear Regression			ANOVA		
Model	R	R Square	df	F	Sig.
1	0.612a	0.375	1; 253	151.623	0.000
2	0.652b	0.424	2; 252	92.933	0.000
3	0.664c	0.441	3; 251	65.883	0-.000

a. Predictors: (Constant), Physical domain

b. Predictors: (Constant), Physical domain, Psychological domain

c. Predictors: (Constant), Physical domain, Psychological domain, Environmental domain

Concerning the correlations among QOL and life domains, the physical domain showed the highest correlation (ρ=0.558, p=0.000), followed by the psychological (ρ=0.499, p=0.000), environmental domain (ρ=0.452, p=0.000) and the social relationships domain (ρ=0.335, p=0.000).

Discussion

To the best of our knowledge, this is the first study that has explored the associations among a wide range of sociodemographic variables and overall QOL in a sample of Portuguese general population, and that uses these variables to identify QOL predictors and normative data.
Results from this study show that this sample of adults from Portuguese general population considers their QOL as good. The current findings agree with research with normal older adults in the United Kingdom [13; 21] and in adults in Portugal [23; 24]. The order of importance of the domains (physical, psychological, social relationships and environment) is in line with the findings of Serra et al. (2006) for Portuguese population [23].

QOL and age were significantly associated in this study. Although the relation was weak, younger ages are associated to better QOL. These findings are in accordance to those of Fleck and Louzada et al. (1999), Hawthorne et al. (2006); Skevington et al. (2004) and Wahl, et al. (2004), but not with those of Spagnoli et al. (2010) which reports Portuguese general population data [11; 12; 14; 16; 17]. This may be due to the fact that Spagnoli et al. (2010) studied individuals with a limited age range of 25 to 50 years.
Significant association were also observed for educational level, wherein people with higher levels of education reported better QOL. These findings are in accordance to those of Wang et al. (2006) [20]. In general, within the educational level subgroups, the highest QOL domain values observed were in the physical and psychological domains. The lowest were in environment. Regarding education and QOL domains, Brazilian population report highest values for social relationships and the lowest values for environment [15].
Emotional status and QOL were also significantly related. These findings are confirmed by Fleck et al. (2006), Leung & Lee (2005) and Serra et al. (2006) [8; 22; 23]. People with better emotional status reported better QOL, which is in accordance to Serra et al.'s (2006) findings [23].

Socioeconomic status was also significantly correlated with overall QOL: people with higher socioeconomic levels reported higher QOL scores. This same finding was verified in the southern Brazilian general population [15]. In our study, the physical domain had the highest scores for all socioeconomic groups and the environment the lowest. This finding is not confirmed by Cruz et al. (2011) who found a range of scores for physical domain which varied according to socioeconomic status [15].

The QOL was significantly different according to living place with people living in the islands having better QOL than in those on the mainland. There is no data available in the literature to compare these findings, although knowing that the biggest cities of Portugal are in the mainland, the findings of Farquhar (1995), who reported on London rural and urban based participants, can provide some support to what was found in this study [21].
Overall QOL was also significantly different among marital status subgroups. In our study, single people had better QOL. This is not in agreement with Wahl et al.(2004), whose findings showed that being married or living with a partner is associated to a better QOL [12]. Our data may be influenced by the fact that the majority of the single sample was young (as in Wahl et al.'s (2004) study), and younger people had better QOL.

Regarding different types of cohabitants, the differences are significant and those who live with the parents had the best QOL. No literature was found to compare this data with. Again, this data could be influenced by age because the great majority of the sample (82%) that lived with parents was 25 to 34 years. In this study there seems to be some interdependence of age (being young), marital status (being single) and residential arrangement (living with parents).

QOL among employed, unemployed and retired people was also significantly different. Employed people had the best QOL. This data is in accordance with [12].

Regarding health status, significant differences were also found among the unhealthy and healthy groups, with the former reporting better QOL. This is in agreement with Wahl et al.'s (2004) findings [12].

In our study, gender and cohabitant number had no association with QOL. The gender findings are in accordance to those from Brajsa-Zganec et al. (2010), Molzahan et al. (2010), and Spagnoli, et al. (2010) [17-19]. All domains' results from male and female participants were higher than those shown by Cruz et al. (2011) in Brazil. The best domains in our sample were psychological for men, and physical for women, and the worse was environment for both. In Brazil, the best domain was social relationships and the worse was physical for both genders [15]. Skevington's (2004) multi-centre study reported better means for men's physical domains and social for women's domains, and lower scores for environment [11]. No data is available in the literature about number of cohabitants.

Additionally, this study showed that the best predictors of QOL were emotional status and educational level. The physical and the psychological domains were the best QOL predictors. In the results of Serra et al. (2006), the domain with the strongest correlation with overall QOL was the physical domain, followed by psychological and environmental domain. The weakest correlation was with the social relationships domain [23]. The same results were found in our study.

The response rate (58%) is an issue in this study since we don't know the reasons for non-responding and whether the QOL of non-responders is similar to the responders'. The non-probability sampling method used is also a limitation, so the findings should be interpreted with caution. Nevertheless, individuals within this study are a reasonably close match to the Portuguese population characteristics for mean age and gender, and the effect sizes were small (correlation and regression) and medium (chi-square). More studies are needed in order to achieve reference values for this population allowing comparisons among other healthy or unhealthy populations. In order to achieve that, a representative and bigger sample is desirable.

An integral and multidimensional view of person's lives will allow identifying and planning the adequate support needs and will be useful for the orientation of the activities carried out by service providers and to adjust programs and policies.

Conclusions

WHOQOL-Bref is an assessment tool that usefully captures an integral and multidimensional view of life of people from Portuguese population. The QOL of the participants of our sample, adults from Portuguese general population, is influenced by variables such as emotional status, educational level, age and socioeconomic status. Living in the mainland or in the islands, marital status, type of cohabitants, occupation and health also influence QOL of Portuguese adults of this sample. Among these variables, the best predictor of QOL is emotional status. The best QOL domain predictor is the physical domain.

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