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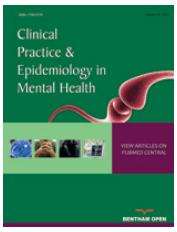

RESEARCH ARTICLE

Quality of Life of Sardinian Immigrants in Buenos Aires and of People Living in Italy and Sardinia: Does the Kind of Care have a Role for People with Depression?

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Abstract:

Background / Objectives:

The aim of the study was to compare the Quality of Life (QoL) of Sardinian immigrants to Argentina with Sardinians residing in Sardinia. The hypothesis was that a different availability of effective treatments for mood disorders may impact the well being of persons with these disorders.

Methods:

One out of five families of Sardinian origin was randomly selected. An Italian study (including Sardinia) was adopted as the control. The Mood Disorder Questionnaire was used for screening mania/hypomania; the diagnosis of Current Major Depressive Disorder was conducted by means of the Patient Health Questionnaire in immigrants and by means of a clinical interview in the control study and in an immigrant subsample (to verify comparability); the Short-Form Health Survey-12 was applied to measure QoL.

Results:

The Sardinian immigrants showed a higher QoL than Italians in Italy (but not with Sardinians residing in Sardinia). On the contrary, the attributable burden worsening QoL due to lifetime manic/hypomanic episodes, as well as to current depressive episodes, was found higher among Sardinian immigrants with respect to both Sardinian residents in Sardinia and the total Italian sample. The use of effective treatment for mood disorder was higher in Italy.

Conclusion:

The study found that in a sample of Sardinian immigrants in Buenos Aires the impact of a mood disorder affects QoL more incisively than in Sardinians residing in Sardinia. The suggested hypothesis of a possible role of beliefs guiding the search for treatments will be verified in future studies.

Keywords: Community survey, Immigration, Mood disorders, Major depressive disorder, Quality of life, Treatment.

1. INTRODUCTION

Quality of Life (QoL) is a complex, multidimensional concept that has gained importance in recent health and social

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literature, albeit with different conceptual and operative perspectives [1, 2]. One element common to the different definitions of QoL is that it is not limited to measuring the standard of living, an idea mostly related to a person's income and employment. In a more expanded vision, indicators of QoL also include variables involving person's environment, his/her physical and mental health, level of education, organization of recreational periods and the sense of belonging to a society [1, 3].

QoL can be measured by means of "objective" scales or with subjective indicators. In any case, both approaches refer to a multidimensional concept that requires a description of the different domains of everyday life. These may be taken both individually and collectively in their interactions as determinants of QoL, since they produce a value that can be measured by means of "objective" parameters, or according to the level of satisfaction that individuals express with reference to their lives [4, 5]. The so-called subjective measurement of QoL is about whether individuals are satisfied or not. Macroscopic characteristics concerning the economic and social situation of a society are important in relating individual results to their proper context, but the key to this approach is a given person's subjective perception of wellbeing [5, 6].

The subjective perception of QoL has been considered the most important element in measuring what goes beyond the strictly clinical outcome of chronic diseases, especially in cases of disorders that markedly disrupt social and working functionalities and have a strong impact on daily life [7 - 9]. For this reason, the concept of QoL has become central in assessing the efficacy of treatments within a vision more global than that of a mere measurement of the control over symptoms. Measurement of QoL has also been used to compare the overall conditions of life in different contexts and personal satisfaction in connection with a person's environment [10, 11].

A recent study coordinated by the University of Cagliari evaluated the perception of QoL in a sample of the overall population in six Italian regions (Sardinia included) and investigated whether socio-demographic variables may influence this parameter [12].

Our group recently performed an investigation on the Sardinian immigrant population in Buenos Aires. The research aimed to measure the frequency of depressive and bipolar disorders among the immigrants and compare it with that of the Sardinian and Italian population. Another aim of the study, which is the subject of this work, was to measure QoL and see whether psychophysical variables may influence QoL, and whether this occurs in ways different from those observed in similar studies in Italy.

The starting hypothesis was that the presence of a national healthcare system and a welfare system, as is the case with Italy, which have supported the introduction of effective treatments for mood disorders may impact the overall wellbeing of persons who have been diagnosed with mood disorders.

2. METHODS

2.1. Design

This is an observational epidemiological study based on a community survey conducted on a sample of the population of Sardinian immigrants residing in the city of Buenos Aires. The results are compared with those published on a previous study performed on a representative sample of six Italian regions (from which the Sardinian sub-sample was extrapolated). This study used a similar screening method for bipolar disorder and assessment of QoL [11] and a different but comparable method for identifying episodes of major depression [12].

2.2. Sample

The study was carried out in Buenos Aires on Sardinian adult immigrants above the age of 18 years. The lists of families of Sardinian immigrants were supplied by the associations of Sardinian immigrants in Buenos Aires that had conducted studies for this purpose. A random sample equal to one fifth of the listed families was selected for the study. Each selected family was contacted by telephone. At that time, those who answered the phone were asked if they were Sardinian immigrants of first or second generation (*i.e.* children of Sardinian parents); only these two classes were asked to participate in the study.

The first contact with those eligible also made it possible to explain the reasons for the research and, if found eligible for the study, they were asked to give preliminary consent to participate. Still by phone, those who accepted were asked to provide preliminary information such as name, age, how they migrated and from where. At this point a meeting was arranged for administering the questionnaires. This part of the study took place at the Universidad del

Museo Social Argentino, in the rooms of the Association of Sardinians ("Sardi Uniti d'America"), or at the home of the immigrants, depending on where they lived and on how easily they could reach the two institutional locations with public transport facilities.

2.3. Instruments

In collecting personal data of a general nature, such as sex, age, residence, educational level, marital status, presence of children, employment and their migrating experiences, the same questionnaire used in the previous study on Sardinian immigrants in Argentina was employed [13].

The test used in screening for depression was the Patient Health Questionnaire (PHQ9) [14], which was administered in the Italian [15] or Spanish version [16]. The PHQ-9 is an interview that is self-administered or administered by phone in a shorter version. It is a relatively easy-to-use multiple-choice questionnaire: the answers concern each of the nine DSM-IV-TR criteria for major depression. Depending on the seriousness of the symptom investigated, those interviewed can respond using a scale from "0", completely absent, "1" for some days, "2" for over half the days, up to "3", meaning present almost every day. The score obtained as the sum of the single replies frames the condition under analysis in a pre-defined scale of depressive symptomatology: 0 to 4 indicates minimum or no depression; from 5 to 8 mild depression; from 9 to 14 moderately severe depression; 15 to 19 severe, and 20 to 27 very severe depression. The major depressive disorder (MDD) is diagnosed if five or more of the nine criteria/symptoms are present for at least more than half the days (a score equal to or above 2) in the previous two weeks and if one of the symptoms is depressed mood or anhedonia. Today, the PHQ9 is one of the most frequently administered tests in screening depression.

For the screening of lifetime episodes of mania/hypomania, the Mood Disorder Questionnaire (MDQ) [17] was employed. It was available in Italian [18] or Argentine Spanish [18]. The test consists of the assessment of thirteen maniacal symptoms: positivity is reached in accordance with Italian [18] and Argentine [19] validation if at least seven symptoms are present at the same time and precise criteria of severity are found.

In evaluating QoL, the twelve-item Short Form Health Survey (SF-12) [20] was adopted. This instrument was available in two languages, Italian [11] and Spanish [21], which were used depending on the interviewee's linguistic competence. The twelve items of the questionnaire were taken from a longer version (SF-36): SF-12 has been used in many international-level studies and has been found appropriate for studies on clinical populations but also for epidemiological investigations of populations. Our group employed the Italian version in an extended national research programme [11]. SF-12 assesses how individuals perceive their wellbeing in different dimensions with reference to the previous month. The higher scores indicate a better perception of QoL, therefore the higher the total score the better is the evaluation of their QoL. SF-12 investigates eight different aspects of health: physical activity, role limitations due to physical issues, emotional state, physical pain, level of perception of overall health, vitality, social activities and perception of one's own mental health; the score can be used as a total (overall QoL) or divided into two indices of the state of health, one concerning physical health and the other psychological condition.

The ANTAS - SCID [12, 22] interview was administered to a group of 10 positive and 40 negative individuals in PHQ 9.

The interviewers (mother tongue Italian with a good knowledge of Spanish) were psychiatric rehabilitation technicians or properly trained physicians; only the ANTAS-SCID interview was conducted by psychiatrists.

2.4. Statistical Analysis

1) The statistical analysis was carried out by comparing the average scores on the SF-12 questionnaire in our sample with similar results of the Italian study (Carta *et al*. 2012b) (divided into the total Italian sample [12] and the Sardinian sub-sample). The analysis was performed with the univariate analysis assuming the average SF-12 score as the dependent variable. It was conducted by comparing the unweighted averages of the sample of immigrates against each of the other samples as well as after indirect standardization of the two control samples, taking into consideration the distribution by sex and age in the immigrant sample. The subdivision by age and gender generated four cells (the subdivision by age was based on being younger or older than 40 years).

2) Comparison of the mean score on the SF-12 in the three subgroups of positives at the MDQ (Immigrants, Whole Italian Sample, Sardinian Subgroup of the Italian Study) by means of statistical one-way ANOVA and comparison with the same statistics of the attributable burden in worsening QoL due to being positive to mania/hypomania in the three

samples. The attributable burden [5, 21] was calculated as the difference of the SF-12 score in a random sub-sample of the same age and sex of negatives at MDQ minus the score of the positives in the MDQ sample.

3) In the three different samples the mean score on the SF-12 was calculated in the subgroups with current depressive episodes (defined by positivity to PHQ9 in immigrants and presence of depressive episodes as diagnosed with SCID-ANTAS in the samples of residents in Sardinia and Italy). The burden in worsening the QoL attributable to having a depressive episode was calculated with the same methodology explained above. We then calculated the differences in the mean of attributable burden in worsening QoL due to the presence of a depressive episode in people with current depressive episodes in the three different groups.

4) A quality control test was performed to verify the accuracy of the PHQ9 screening test. For this reason, the sensitivity, specificity, predictive positive value and predictive negative value at the 9/10 cut-off were re-calculated: this cut-off is higher than the one used for research purposes with screening (7/8), but this option was chosen because in this case it was necessary to test more accurate "case-finding". To increase the cut-off of the screener and decrease the chance of false positives, as well as to improve reliability of a comparison between two samples in which current depression is measured by positivity at the screener in a sample, "cases" are identified with a more accurate method in another sample. Accuracy was re-calculated using the ANTAS-SCID depressive disorder diagnosis as the gold standard in a group of 8 positive individuals and 42 negatives at the PQH9.

2.5. Ethical Standards

The study was conducted in compliance with the Declaration of Helsinki. The study protocol was approved by the Ethics Committee of the University Hospital of Cagliari and by the board of the Universidad del Museo Social Argentino. Those interviewed were provided with information about the nature and purpose of the study and were given the phone number of a controller who was available to answer further questions. Those who decided to participate in the research were also informed about the possibility of terminating the interview at any time with the guarantee that they would not be asked to provide further explanations, and were asked to sign an informed consent form. Participants received information on data protection and were informed about the laws governing privacy in this kind of research and databases. The interviewers explained that the study data would be collected in a public database, and would be kept confidential in accordance with the laws of Argentina and Italy on data protection.

3. RESULTS

The sample of this survey consisted of 306 individuals of Sardinian origin residing in the city of Buenos Aires who had migrated to Argentina, or were children of Sardinians who had migrated to Argentina (first or second-generation immigrants).

Out of the 367 individuals selected, 61 (16.6%) did not participate because they refused to or we were unable to contact them. The sample of those who were not interviewed was homogeneous with the sample of interviewees in the only variable that could be compared: the distribution by gender.

Table **1** presents the characteristics of the study sample (those who participated in the research and completed the interview) and of the two samples that were used for the comparison which were the total of the Italian research sample on the consumption of antidepressants and the sub-sample of residents in Sardinia in the same research. The immigrant sample was balanced by sex but was older and with more graduates than the comparison samples of Sardinian residents in Sardinia and Italians.

Table 1. Samples studied.

	Sardinians in Argentina (306)	**AIFA Sardinian sub-sample (309)**	**AIFA Total sample (3398)**
% Males	47.7	47.8 (χ 2=0.01, 1df, P=0.99)	42.3 (χ 2=0.23, 1df, P=0.63)
% ≤40 years of age	14.4	37.9 (χ 2=46.90, 1df, P<0.0001)	43.4 (χ 2=98.32, 1df, P<0.0001)
% University graduates	38.6	24.6 (χ 2=13.89, 1df, P<0.0001)	26.2 (χ 2=21.68, 1df, P<0.0001)

Table **2** compares the perceived QoL (as a mean of SF-12 scores) in the three samples studied. The comparison of

unweighted data shows an apparent overlap of results, but as is known from the publication of the results of the Italian study, the perceived QoL is higher in young people and the immigrant sample is a senior sample [11]. Thus, and not surprisingly, after standardization a tendency toward a better perception of QoL was found in the immigrants. This reached statistical significance in comparison only with the total Italian sample (P=0.048, see Table **2**).

Table 2. Perceived quality of life in the samples studied (SF-12 mean and standard deviation).

	Sardinians in Argentina (306)	AIFA Sardinian sub-sample (309)	AIFA Total sample (3398)	Comparison with Sardinians Anova 1 way df 1,613,614	Comparison with total sample Anova 1 way df 1,3702,3703
Not standardized means	38.33±6.12	38.38±6.5	38.40±6.10	F=0.010 P=0.919	F=0.037 P=0.808
Comparison after indirect standardization (by sex and age)	38.33±6.12	37.81±6.4	37.61±6.10	F=0.692 P=0.406	F=3.909 P=0.048

Table **3** shows the perceived QoL (as the average of the SF-12 scores) in different sub-samples of people with lifetime manic/hypomanic episodes (measured as being positive at MDQ). Unlike the findings in the total of samples (with or without positivity), in this case a trend to a poorer QoL in immigrants with previous episodes of mania is evident. The result is a higher attributable burden due to positivity at MDQ in worsening the QoL in the immigrants, with a clear significant statistical difference *versus* both the sample of Sardinians resident in Sardinia (F=20.28 P<0.0001) and that of Italian residents (F=1677,0 P<0.0001) with a similar condition.

Table 3. Perceived quality of life in the different samples of persons with previous lifetime maniacal/hypomanic episodes (positivity at the MDQ).

	Sardinians in Argentina (22)	AIFA Sardinian sub-sample (9)	Aifa Total sample (103)	Comparison with Sardinians Anova 1 way df 1,29,30	Comparison with total sample Anova 1 way df 1,123,124
SF-12 Means ± standard deviation	31.85±6.38	34.10±6.70	34.07±6.21	F=0.141 P=0.246	F=2.295 P=0.132
Weight attributable ("attributable burden") to disorder in lowering the quality of life	6.48±1.82	4.28±1.90	4.33±2.0	F=20.28 P<0.0001	F=1677,0 P<0.0001

Table **4** shows the comparison of perceived QoL in the three sub-samples of people with current depressive episodes (at the time of the interview). The presence of depressive episodes was defined with different methods: in immigrants it was measured as being positive at PHQ9 with a score of >10 and with fulfilled criteria for DSM-IV depressive episodes. In the samples of residents in Sardinia and in Italy major depressive episodes were instead identified through the ANTAS-SCID clinical interview. Once again, there emerges a much greater attributable burden due to depressive episodes in compromising the QoL in immigrants with a clear statistical significance of differences *versus* the samples of Sardinians resident in Sardinia (F=74.59, P<0.0001) and of the whole Italian sample (F=288.9, P<0.0001).

Table 4. Perceived quality of life in the different samples of persons with a depressive episode at the time of the interview (positivity at the PHQ9 [score >10 with criteria for a depressive episode with verification *vs.* ANTAS-SCID] in the immigrant sample; major depressive episode at ANTAS-SCID in the sardinian and italian samples).

	Sardinians in Argentina (20)	AIFA Sardinian sub-sample (7)	Aifa Total sample * (55)	Comparison with Sardinians Anova 1 way df 1,25,26	Comparison with total Anova 1 way df 1,73,74
SF-12 Mean±SD Persons with current depressive episode	27.10±5.81	30.3±6.13	29.20±5.1	F=1.532 P=0.227	F=2.362 P=0.128
Weight attributable ("attributable burden") to the disorder in lowering the quality of life	11.2±2.23	3.50±2.20	4.33±1.22	F=74.59 P<0.0001	F=288.9 P<0.0001

*Carta *et al.* 2011

Table **5** confirms that the high cut-off of PHQ9 that was chosen for this research (>9) provides excellent sensitivity (87.5%) and an excellent predictive value of positives (87.5%). Therefore, those who are identified as positive have a

high probability of having a true depressive episode.

Table 5. Result of the quality control study on PHQ9 accuracy. Gold standard diagnosis of DSM-IV current major depressive disorder by ANTAS-SCID cut-off 7/8 (left column) and 9/10 (right column).

	Cut-off 7/8	Cut-off 9/10
Sensitivity	**72.7%**	**87.5%**
Specificity	**94.9%**	**97.1%**
Predictive Positive Value	**80%**	**87.5%**
Predictive Negative Value	**92.5%**	**80.9%**

In the Italian study, 31 (54%) out of 55 individuals recognized as suffering from a current depressive episode took antidepressants of first or second choice, with or without additional psychotherapy [23]. In the Argentine sub-sample of the ANTAS-SCID interview, only 1 (12.5%) out of those suffering from a depressive episode took antidepressants while 3 (37.5%) were following psychotherapies of unproven effectiveness for depressive episodes (psychoanalysis) [24]. Therefore, out of the total "Italian" sample, only 46% had not followed effective therapies, while in the sub-sample of the migrants in our study 87.5% were not following effective therapies (Fisher's exact test P = 0.026).

4. DISCUSSION

Our research found that a sample of Sardinian emigrants to Argentina shows a perceived QoL that tends to be higher than a similar sample of Sardinians resident in Sardinia, when the samples are standardized for age and sex. However, this difference did not reach statistical significance, but was statistically significant when the sample of Sardinian immigrants was compared to the total sample of the Italian research on residents in six different Italian regions.

The data we have do not allow us to clarify whether this divergence in the two comparisons depends on a specific attitude of Sardinians (in Sardinia as well as in Argentina) to give a poorer evaluation of the QoL, or whether it is simply due to the fact that the comparison of the two Sardinian samples was made on the basis of a minor-power study, which is likely not to highlight differences, larger samples.

The most interesting result of our research determines the evidence that the attributable burden on worsening the QoL due to the presence of a lifetime manic/hypomanic episode, as well as the presence of a current depressive episode, is markedly higher among Sardinian immigrants with respect to both Sardinians resident in Sardinia and the total sample of residents in six Italian regions, including Sardinia.

Thus, having had an episode of mania or suffering from depression worsens the QoL much more among immigrants than among Sardinians resident in Sardinia.

Two important considerations are useful to better understand the significance of this finding. First of all, it should be clear that we are analyzing a form of emigration the largest wave of which dates back to about half a century ago [25], and so it has to do with individuals whose human and family ties are deeply rooted in the country of arrival. The link to the land of origin is cultural and ideological but no longer exists, except in sporadic cases of affectivity and family ties [23]. It is therefore not a "young" emigration where a failure may put an individual in a condition of greater vulnerability than this subject would experience in his/her country of origin due to the lack of established social ties.

The second consideration determines the results on QoL of people with depressive episodes that emerged from the Italian research. This study highlighted not only that over 50% of people with depression found in the Italian sample were taking treatments of proven efficacy for depression, but that their perceived level of QoL was significantly higher than among those who were not treated at all or received ineffective treatments [11]. Probably, a lower number of people with depression are treated with therapies of proven efficacy in societies with no national public healthcare system, even in developed Western societies. For example, a study on a representative sample of the US population found that approximately 30% of Afro-American respondents and fewer than 50% of white respondents [26] with a current diagnosis of Major Depressive Disorder were taking drugs prescribed by physicians over the last twelve months (without checking the effectiveness of treatments against depression).

In the sample of immigrants, it is characteristic that out of the 8 subjects identified as having a current major depressive episode at the ANTAS-SCID interview, only 1 (12.5%) was taking antidepressants, and 3 (37.5%) were

under psychoanalytic psychotherapy, which appears to be a questionably effective treatment against depression owing to a paucity of high-quality studies [24] and was found to have limited efficacy only in some specific brief derived-psychoanalytic psychotherapies [25].

The health system of the city of Buenos Aires reimburses drugs and psychotherapy, at least in part. However, it is still widespread among Argentinean medical professionals and in popular beliefs that the best therapy for depressive episodes may be psychoanalysis or, at best, the administration of benzodiazepines [26].

The most plausible explanation of the difference in perceiving QoL in people diagnosed with mood disorder is that in Italy and Sardinia people have easier access to effective therapies than in Argentina. This is owing to cultural tradition: in Argentina psychoanalysis is deep-rooted and, as a result, even today professionals as well as people in the community still do not realize that there are different effective treatments for depression; however, this trend is changing, especially in Buenos Aires [27].

It is worth underlining that this is a preliminary study and has only a heuristic value since it is based on one survey not specifically designed to test this study hypothesis. The topic of this paper is only a secondary objective of the overall project that led to the collection of these data on the immigrants in Buenos Aires.

For these reasons and because of the design of our study as a community survey, these results may be useful in producing more hypotheses than in verifying them. The study therefore suggests that to detect real differences, it would be useful to conduct studies in Argentina on what people think of depression in a way similar to what has been done in other countries, including Italy and Sardinia.

Another obvious limitation of our study is that a screening questionnaire was used to detect depressive episodes in the sample of migrants, while in the Italian sample (and in the Sardinian sub-sample) a more accurate clinical interview was used. However, the quality control study allows us to state that the screener is valid in comparison with exactly the same interview used as the gold standard.

CONCLUSION

The study found that in a sample of Sardinian immigrants in Buenos Aires the impact of a mood disorder affects the QoL more incisively than in Sardinians residing in Sardinia. The data appear to suggest the hypothesis of a possible role of beliefs that guide the search for cures. This hypothesis will be tested in future studies.

LIST OF ABBRIVIATIONS

ANOVA	=	Analysis of Variance
ANTAS- SCID	=	Advanced Neuropsychiatric Tools and Assessment Schedule modified form Structured Clinical Interview for DSM-IV
CI	=	Confidence Interval
CIDI	=	Composite International Diagnostic Interview
DF	=	Degree of Freedom
DSM-IV-TR	=	Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision
MDD	=	Major Depressive Disorder
MDQ	=	Mood Disorder Questionnaire
OR	=	Odds Ratio
PHQ9	=	The Patient Health Questionnaire 9 Items
QoL	=	Quality of Life
SF-12	=	Short Form Health Survey twelve-item

AUTHOR'S CONTRIBUTION

MGC, MVB, MMF and AEN participated in the design and coordination of the study, in the acquisition and analysis of the data and drafted the manuscript. MGC, MFM and LM participated in the analysis of the data and drafted the manuscript. FS, MA, SD and AP collaborated in the design of the study, in the acquisition and analysis of the data and drafted the manuscript. All authors read and approved the final manuscript.

CONFLICT OF INTEREST

The authors confirm that this article content has no conflict of interest.

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