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ORIGINAL ARTICLE

Chronic pain and quality of life in schizophrenic patients

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Abstract
Objective: To identify the prevalence and characteristics of chronic pain in schizophrenic patients and to compare the quality of life in patients with and without chronic pain. *Methods:* Crossover design with a probablistic sample of 205 adult schizophrenic outpatients (80% paranoid schizophrenia). Socio-demographic, psychiatric disorder, pain and quality of life (WHOQOL- brief) data were collected between June and September 2008. *Results*: Mean age was 37 years, 65% were men, and the mean time spent in school was 9 years; 87% were single, 65% lived with parents and 25% had a job. Among patients with chronic pain, 70% did not receive treatment for pain. Regarding quality of life, patients with pain had more physical disabilities compared to those without pain ($p < .001$). There were no differences in other domains. Comparisons between patients with and without pain did not show any differences in how much they felt their mental health problems disabled them. *Conclusion:* Chronic pain was common in schizophrenic patients (similar to the general population of a similar age) and decreased their quality of life. It is necessary to pay more attention to this co-morbidity.

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Introduction

Investigating the quality of life among patients suffering from chronic diseases, such as schizophrenia, may help in understanding the impact that these diseases have on individuals and may assist in the planning of public policies in mental health, thereby ensuring improved quality of care.[1,2]

Compared to the general population, individuals with schizophrenia suffer from worse living conditions, have a lower quality of life,[2] and face impairment in occupational and social relationships; they attain lower educational levels, present positive and depressive symptoms, and show a higher number of hospital admissions and increased duration of disease.[1,2]

Like schizophrenia, chronic pain is incapacitating as it compromises the functionality of social and family relationships and the quality of life of individuals. Chronic pain occurs in 20 to 40% of the population[3] and is defined as pain that continually or intermittently persists for more than three months for clinical purposes or for more than six months for research purposes. Chronic pain often becomes the primary focus of attention for sick individuals, as it influences a large part of their activities and produces intense suffering, irritability, hopelessness and a degree of physical and/or psychological disability.[4-6]

There are few studies on chronic pain in psychiatric patients. Among these, the most studied conditions are depression, anxiety disorder, post-traumatic stress disorder and mood disorders.[7,8] With respect to chronic pain in schizophrenics, studies are even more rare and those that exist mainly focus on possible changes in sensitivity to pain.[9,10]

In a review of the literature available in national (i.e, Dedalus, Periódicos Capes, Scielo, BDENF) and international (i.e., Pubmed, Ovid, PsycINFO, Scopus, Medline, Embase, and Cochrane) databases regarding the descriptor combination of pain and schizophrenia, only four international studies were found that examined the prevalence of chronic pain in this population.[11-14] The prevalence of chronic pain reported in these studies varied between 8% and 74%, but there were differences in their definitions of chronic pain, research methods and biases in their samples that might explain the wide variation. It is believed that the prevalence of pain among chronic schizophrenics should be similar to that of the general population. No studies were found that examined chronic pain and the quality of life of schizophrenics.

Schizophrenia is complex, costly and causes great damage to patients, families and society. Patients have a high prevalence of physical health problems that are often undiagnosed.[9,10,15]

As a co-morbidity, chronic pain can be even more deleterious to quality of life. These facts indicate that the prevalence of chronic pain and its impact on the quality of life of schizophrenic patients should be studied in more depth. This study proposes to examine the prevalence of chronic pain among patients with schizophrenia and its impact on their quality of life.

Methods

Sample

A cross-sectional study was conducted with a sample composed of patients with schizophrenia who were enrolled in a clinic at the Department and Institute of Psychiatry – Universidade de São Paulo, Brazil (FMUSP-IPq). This clinic is a national reference center for treating patients with psychiatric disorders.

Patients were included according to the following criteria: a medical diagnosis of schizophrenia according to the 10th revision of the International Classification of Diseases (ICD-10),[16] regular enrollment in FMUSP-IPq, aged 18 or over, ability to understand and verbalize in order to answer the questionnaires, abscence of acute psychiatric symptoms at the time of interview (e.g., disorganized speech and behavior, self, temporal and space disorientation, aggressiveness and irritability), agreement to participate and to sign the informed consent.

To estimate the sample size the following parameters were considered: the prevalence of chronic pain in the general population is between 20 and 40%,[3] whereas it is 25% in psychiatric patients.[17,18] A 5% error rate and 95% reliability rate were assumed, making a total sample size of 201 subjects to which 15% was added to allow for possible refusals or losses, yielding a final sample size of 230 patients.

From June to September 2008, 657 patients with schizophrenia were enrolled in the clinic, 230 of which were randomly selected for participation in this study. The statistical software R was used for sampling.[19] Five patients were excluded for failure to meet ICD-10 criteria,[16] seven for failure to answer the questionnaires, five refused to participate, one died, and seven were not found after three attempts. Therefore, the final sample for this study was 205 patients.

Instrument

The instrument was divided into three parts. Part 1 consisted of the characterization of the population and the psychiatric disorder, as follows: identification data (i.e., name, age, and gender), address, hospital record, socio-cultural characteristics (i.e., education, religion and occupation), psychiatric disorder according to ICD 10[16] classification, length of treatment and the first episode. Part 2 consisted of the characterization of pain, as follows: location, frequency, duration, intensity and quality. Part 3 consisted of an assessment of quality of life. For this, the World Health Organization-Quality of Life instrument (WHOQOL-brief[20]) was used, which consists of 26 items that have been validated and widely used in mental health research studies.

The scale is composed of 26 questions, two of which (the 1st and 2nd) are general questions, while the other 24 cover the following four domains: physical, psychological, social relationships and environment. Each question is graded with a Likert-type scale for intensity (not at all - extremely), capacity (not at all - completely), frequency (never - always) and rating (1 = very dissatisfied, 2 = dissatisfied, neither satisfied nor dissatisfied, 3 = satisfied 4 = and 5 = very satisfied). This scale creates an analog scale ranging from 0-100, with zero as the

lowest score and 100 as the highest score. The greater the score, the better the quality of life, whereas the lower the score, the worse the quality of life. In Questions 3 and 4, scoring was reversed, with a higher score reflecting a lower quality of life.

Question number one refers to general quality of life, and number two refers to general health. A third question was inserted by the researcher, called 3-A, which asks about the impediments that a mental disorder causes in the individuals' lives.

Procedure

Data collection occurred from June to September 2008. Pain was assessed with regard to site, frequency, duration, intensity and quality. Chronic pain was defined as pain that lasted for six months or more.

Each participant received a copy of the questionnaire to accompany the interview. A researcher (JGA) read the instrument and registered the answers provided by the respondents. If a question was not understood, the interviewer read it again slowly with no further explanation or used synonyms to ask the question.

Patients who received assistance from two specialized groups (i.e., Schizophrenia Program and GARPE - Care and Rehabilitation of the Schizophrenic Patient) were located using the Integrated System of Hospital Management (SIGH). Patients were randomly selected and contacted for interviews on the date of their next medical consultation, as registered in the system.

If patients were absent or could not be located on the day of the consultation, telephone contact was made to schedule the interview. After three absences or refusals, patients were excluded from the study.

Interviews were conducted in a private environment by the researcher, and each lasted approximately 20 minutes.

This study was approved by the Ethics Committee within the Hospital das Clínicas of the Medical School at the Universidade de São Paulo.

Statistical analysis

The reliability of the instrument for the population used in this study was analyzed using the Cronbach Alpha Coefficient in which values above .60 are acceptable.[20] To check the adequacy of using the WHOQOL-brief with this population, we tested the reliability of the instrument and found that the internal consistency ranged from satisfactory to very good (.657 to .908). Domain 1 (physical) had the lowest value (Table 1).

The prevalence of chronic pain and its respective range were calculated with 95% confidence (CI 95%). The chi-square test was used to compare the frequencies of the variables (e.g., schizophrenia type, age, gender, years in school, and time since the beginning of the disease), and Student's *t*-tests or Mann-Whitney tests were used to compare the scores for quality of life, as appropriate. Statistical tests were performed with a significance level of 5%.

The collected data were entered into SPSS for Windows, version 14, for descriptive and inferential analyses.

Table 1 The Cronbach alpha coefficient of reliability for the domains and questions (n = 205).

Items	Cronbach alpha coefficient	Number of items
Domains	.849	6
26 Questions	.908	26
Domain 1 (physical)	.657	7
Domain 2 (psychological)	.791	6
Domain 3 (social)	.812	3
Domain 4 (environment)	.770	8

Questions 3, 4 and 26 were analyzed inversely. If the original score was x, then the inverted score was (5-x).

Results

A total of 205 patients participated in this study. Of these, 75 reported chronic pain (prevalence = 36.6% [CI 95%: 29.9 to 43.6]). Pain was reported in the abdomen (30.7%), the head/face/mouth (24%) and lumbar/sacral and coccyx regions (14.7%). With regard to frequency, 24% of the interviewees reported pain every day that lasted from one to six hours, 33.3% reported having pain two to three times a week, 40% reported having pain with long intervals in between (once a week and every fortnight), and 2.7% (two patients) reported experiencing pain once a month. The average duration of pain experienced was 41 months (SD = 42.8). Moderate pain was prevalent.

Patients were an average of 37 years of age (19 to 69 years old; SD = 1.3). The majority were male (64.9%), lived without a partner (87.8%), resided with their parents (64.9%), had an average of 9 years of schooling (SD = 3.0) and had no occupation (63.9%).

To compare the quality of life between patients with and without pain, the existence of homogeneity between these groups was assessed (Table 2). A difference was observed (p = .003) in marital status. Among those with pain, 18.7% had a partner, whereas among those without pain, the prevalence was 8.5%. No other differences were observed.

The various domains of quality of life were also compared between groups, and it was noted that the physical domain differed (p = .001), indicating that schizophrenic patients with pain had more complaints of functional impairment than those without pain (Table 3).

To better understand this difference, the items of the physical domain were compared (Table 4). It was observed that the averages of Questions 3 and 4 were higher in patients with pain than those without pain, indicating that patients with pain experienced a lower quality of life. The patients with pain felt more disabled by the pain (Question 3) and more in need of medical treatment (Question 4) in order to pursue daily life activities (p < .001 and p = .001, respectively) than those without pain.

In general, there was not a significant difference between the groups regarding self-assessment of quality of life and satisfaction with health (p = .724 and p = .582, respectively) (Table 5).

The assessment of patients with and without chronic pain on Question 3-a, which is "How mental illness prevents you from doing what you need to do?", did not show statistically significant differences.

Table 2 Patient distribution according to socio-demographic characteristics and the presence of pain.

	With pain ≥ 6 months n = 75	Without pain or pain < 6 months n = 130	p-value
	N (%)	N (%)	
Gender			.086
Female	32 (42.7)	40 (3.8)	
Male	43 (57.3)	90 (69.2)	
Age			
Mean (SD)	38.83 (11.24)	36.18 (9.65)	.077***
Median	37	34	
19-29	16 (21.3)	39 (3.0)	
30-45	41 (54.7)	70 (53.8)	
46-59	12 (16)	17 (13.1)	
60-69	6 (8)	4 (3.1)	
Marital status			.031
No partner	61 (81.3)	119 (91.5)	
With a partner	14 (18.7)	11 (8.5)	
Education			.346***
Mean (SD)	9.56 (3.07)	9.15 (2.90)	
Median	11	10	
0-4 years	8 (1.7)	9 (6.9)	
5-8 years			
9-11 years	35 (46.6)	57 (43.8)	
12-16 years	14 (18.7)	17 (13.1)	
Living situation			.108
With parents	47 (62.7)	86 (66.2)	
With a partner	14 (18.7)	11 (8.5)	
With other people (relatives/friends)	8 (1.7)	24 (18.5)	
Alone	6 (8.0)	9 (6.9)	
Occupation (CBO)*			.550**
With current occupation	25 (33.3)	49 (37.7)	
Senior/managers	-	1 (.8)	
Science and arts	-	1 (.8)	
Technical	1 (1.3)	-	
Management services	1 (1.3)	2 (1.5)	
Commerce/sales clerks	19 (25.3)	33 (25.4)	
Industry services	-	3 (2.3)	
Repair/maintenance services	2 (2.7)	2 (1.5)	
Student	2 (2.7)	7 (5.4)	
No current occupation	50 (67.7)	81 (62.3)	
Never worked	8 (1.7)	13 (10)	
On dole	15 (20)	30 (23.1)	
Retired	13 (17.3)	21 (16.1)	
Unemployed	14 (18.7)	17 (13.1)	

* CBO, Brazilian Classification of Occupations, 2002 (www.mtecbo.gov.br);
** Chi-square test, with current occupation versus without current occupation;
*** Student's t-test.

Table 3 Quality of life for schizophrenic patients with and without chronic pain.

Quality of life domains (0 to 20)	With pain ≥ 6 months n = 75	Without pain or pain < 6 months n = 130	p-value*
	Mean (SD)	Mean (SD)	
Physical	11.4 (2.1)	12.5 (2.5)	.001
Psychological	11.9 (2.6)	11.9 (2.7)	.888
Social	7.5 (3.4)	7.4 (3.3)	.766
Environmental	1.2 (2.4)	9.6 (2.5)	.076

*Student's t-test.

Table 4 Distribution of patients with and without pain according to the questions referring to the physical domain on the WHOQOL-brief.

Quality of life	With pain ≥ 6 months n = 75	Without pain or pain < 6 months n = 130	p-value*
	Mean (SD)	Mean (SD)	
Question 3 To what extent do you feel that physical pain prevents you from doing what you need to do?	2.79 (1.18)	1.20 (.73)	<.001
Question 4 How much do you need any medical treatment to function in your daily life?	3.77 (.76)	3.39 (.77)	001
Question 10 Do you have enough energy for everyday life?	2.69 (.81)	2.49 (.97)	.029
Question 15 How well are you able to get around?	3.59 (1.02)	3.55 (.92)	.728
Question 16 How satisfied are you with your sleep?	3.19 (.88)	3.31 (.84)	.424
Question 17 How satisfied are you with your capacity for work?	2.76 (.73)	2.64 (.78)	.219
Question 18 How satisfied are you with yourself?	2.36 (.94)	2.44 (.89)	.652

* Mann-Whitney test

Table 5 Distribution of patients with and without pain according to the general questions about quality of life on the WHOQOL-brief.

Quality of life	With pain ≥ 6 months n = 75	Without pain or pain < 6 months n = 130	p-value*
	Mean (SD)	Mean (SD)	
Question 1 How would you rate your quality of life?	3.24 (.67)	3.29 (.77)	.724
Question 2 How satisfied are you with your health?	3.07 (.85)	3.18 (.75)	.582

* Mann-Whitney test

Discussion

The goal of the current study was to identify the prevalence of chronic pain in schizophrenic patients and to assess its impact on their quality of life.

Among the 205 patients evaluated in a reference hospital in São Paulo, 75 (36.6%) had chronic pain.

Only four international studies were found that examined the prevalence of pain in patients with schizophrenia. In a German study, approximately 74% of patients with schizophrenia, schizotypal disorders and delusional disorders had complaints of pain.[14] In another study, headaches were experienced by 48% of the 108 patients evaluated.[13]

In contrast to this high prevalence, a cross-sectional study with 1,413 psychiatric patients found that only 203 (14%) patients experienced chronic pain. This percentage was even lower (8%) in an analysis performed with patients who had schizophrenia or other psychoses.[12] A study conducted in London and Edmonton found that the prevalence of chronic pain was approximately 18% in 78 schizophrenic patients.[11]

It is worth noting that the prevalence found in this study falls within the results reported for the general population, which ranges from 20 to 61%. Although the morbidity is similar to that of the general population, the mortality rate is higher in schizophrenics, as the positive symptoms may make them unable to adequately describe physical symptoms and their complaints may not be taken seriously.[9,10]

The observations of Bleuler and others[21-26] that schizophrenic patients feel less pain have several methodological flaws. Patients were in acute psychotic episodes and off-medication; sample sizes were small; pain was not naturally produced, well defined or classified; and the method to evaluate pain varied across studies. The findings of this study show that treated schizophrenic patients are able to describe and discriminate pain duration, intensity and frequency. However, they may not offer this information if they are not asked to do so.[9,10,15]

Schizophrenic patients with pain do not perceive a lower quality of life than those without pain, but their average scores were still lower than those found in other countries. For the general questions about quality of life, there was no significant difference between the groups regarding their self-assessments of quality of life and satisfaction with health.[27-29]

One exception was in the physical domain for the group with pain, as they scored lower than the group without pain. With regard to the psychological, social and environmental domains, the scores did not differ between the groups with and without pain.

The presence of chronic pain worsened the quality of life of patients in the physical domain, yet differences in other areas were also expected, such as in the psychological and social domains. Chronic pain can alter mood result in feelings of helplessness and fatigue, elicit anger and feelings of abandonment and influence behavior.[25,30] So, why did these other areas show no differences? One hypothesis is that the social and psychological damages associated with schizophrenia are such that the losses related to chronic pain were not great enough to express differences in these domains. Another hypothesis is that chronic pain does not influence the quality of life related to these domains.

The result for psychological domain was unexpected, as deterioration in mental functioning is often associated with the presence of chronic pain.[31] With regard to the social domain, this research shows that the lowest scores occur for both the subgroup with pain (score = 7.5) and those without pain (score = 7.4). Higher scores were observed in China (14.0) and Malaysia (13.5), and these scores were almost double the scores found in the current study.[28,29]

Cognitive impairments in executive functioning and memory seem to have a direct impact on the perception of quality of life, particularly in the social domain, and may be the cause or consequence of social isolation of patients with schizophrenia.[32,33]

Another factor related to the social domain is marital status. The results of the current analysis revealed that 18.7% of patients with chronic pain had partners. Among those without pain, this proportion was only 8.5%. Marital status has been found to be a predictor of better evolution in the context of schizophrenia. Men or women without partners are more dependent, participate less in daily life activities and are less socially stimulated, which are all characteristics associated with lower quality of life. This finding was not expected in the current study as schizophrenic and patients with chronic pain are generally not married.[33-36]

With regard to the environmental domain, patients in this study had lower scores for both groups when compared to other studies, and these scores were lower than those found in China (score = 15.0) and Malaysia (score = 14.0).[28,29] A study conducted across 15 regions in Italy also found results that were far superior in all domains, in particular the social and environmental domains, to the current study's results.[37]

This study highlights that the quality of life of schizophrenic patients is low and that pain makes a difference only in the physical domain. The scores for quality of life that were observed in this study are worrying, as they are lower than almost all of the scores described in other studies. The lack of occupational activities, jobs and financial resources shows what schizophrenic patients face in order to become part of the labor market and to be socially accepted.[2,27,32-34]

The overall quality of life of schizophrenic patients has been assessed in a number of studies from various perspectives, such as the effects of depressive symptoms, the side effects of medications, chronic diseases, number of hospitalizations, daily activities and social and emotional relationships, among other factors. It is worth noting that these analyses have been conducted using different evaluation tools.[2,27-29,32,33]

When schizophrenics' scores across the different domains of quality of life are compared with those of individuals without this diagnosis, it appears that the former tend to have worse scores than the latter. However, diabetic patients in Malaysia had lower scores in the physical domain than schizophrenics, which is an exception that was also observed in Turkey, among alcoholics.[28,38]

It is known that treatment with medication alone is not sufficient to maintain the quality of life of many patients given the social and environmental damage that is closely related to the social structure and health system. Rehabilitation programs exist that enhance integration, social interactions, adjustments in interpersonal relationships, independence regarding daily life activities, inclusion in the workplace and improved self-esteem, but their expansion poses challenges to the area of mental health.

One aspect that should be considered is that, despite the random sample of this study, the results are from a specialized hospital that serves as a reference center for teaching and research in psychiatry. It often receives patients with more severe conditions, which may have influenced the scores for quality of life in this study. Another aspect that may be considered a limitation of the study is that the prevalence of chronic pain was determined by patients' verbal reports of persistent pain. There reports were not verified with a clinical history of the pain condition or a physical examination. The quality of life instrument may not be sensitive enough for schizophrenic and pain patients. A new pain module was added since this study was conducted that needs to be evaluated.[35]

The low quality of life of schizophrenic patients is supported by previous literature, and the current study shows that chronic pain does not worsen the quality of life of these patients.

Conclusion

The prevalence of pain among chronic schizophrenics was high, showing that it was similar to that of the general population. The scores for the quality of life of patients with and without pain were lower than those found in other studies with schizophrenics, which was worrying. When comparing the groups with and without pain, a difference was found in the physical domain ($p < .001$), indicating that patients with chronic pain had greater functional impairment than those without chronic pain.

The quality of life of the patients with and without chronic pain was low. Faced with the suffering and losses that result from the persistence of painful conditions, one must be careful to pay attention to this complaint with schizophrenic patients.

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Disclosures

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** Modest*
*** Significant*
**** Significant. Amounts given to the author's institution or to a colleague for research in which the author has participation, not directly to the author.*

References

1. Lehman AF, Ward NC, Linn LS. Chronic mental patients: the quality of life issue. Am J Psychiatr. 1982;139(10):1271-6.
2. Souza LA. Avaliação da qualidade de vida de pacientes com esquizofrenia [dissertação]. Rio de Janeiro: Escola Nacional de Saúde Pública Sérgio Arouca; 2005.
3. Pimenta CAM, Cruz DALM, Rossetto EG, Dellaroza MSG, Kreling MCGD. Epidemiologia da dor. In: Figueiró JAB, Angelotti G, Pimenta CAM. Dor e saúde mental. São Paulo: Atheneu; 2005. p. 3-22ª .
4. Merskey H, Bogduk N, editors. Classification of chronic pain: descriptions of chronic pain syndromes and definitions of pain terms. Seattle: IASP Press; 1994.
5. Salkovskis PM. Somatic Problems, In: Hawton K, Salkovskis PM, Kirk J, Clark DM. Cognitive Behavior Therapy for Psychiatric Problems – A Practical Guide. Oxford, 1989.
6. Nicholas M, Molloy A, Tonkin L, Beeston L. Manage your pain: practical and positive ways of adapting to chronic pain. Sydney: Australian Broadcasting Corporation 2001. p. 11-17.
7. Adler G, Gattaz WF. Pain perception threshold in major depression. Biol Psychiatry. 1993;34:687-9.
8. Low NC, Du Fort GG, Cervantes P. Prevalence, clinical correlates, and treatment of migraine in bipolar disorder. Headache 2003;43(9):940-9.
9. Dworkin RH. Pain insensitivity in schizophrenia: a neglected phenomenon and some implications. Schizophr Bull 1994;20(2): 235-48.
10. Bassit DP, Louzã Neto MR. Complicações decorrentes de úlcera péptica em pacientes com esquizofrenia. Rev ABP-APL. 1997;19(4):127-32.
11. Watson GD, Chandara PC, Merskey H. Relationships between pain and schizophrenia. Brit J Psychiatr. 1981;138:33-6.
12. Chaturvedi S, Michael A. Chronic pain in a psychiatric clinic. J Psychosom Res. 1986;30(3):347-54.
13. Kuritzky A, Mazeh D, Lei A. Headache in schizophrenic patients: a controlled study. Cephalgia. 1999;19(8):725-7.
14. Baune BT, Aljeesh Y. Is pain a clinically relevant problem in general adult psychiatry? A clinical epidemiological cross-sectional study in patients with psychiatric disorders. Schmerz. 2004;18(1):28-37.
15. Jeste DV, Gladsjo JA, Lindamer LA, Lacro JP. Medical Comorbidity in Schizophrenia. Schizophr Bull. 1996;22(3):413-3.
16. Organização Mundial de Saúde (OMS). Classificação de transtornos mentais e de comportamento da CID-10: descrições clínicas e diretrizes diagnósticas. 10ª rev. Porto Alegre: Artes Médicas; 1993.
17. Mahmood T, Romans S, Silverstone T. Prevalence of migraine in bipolar disorder. J Affect Disord. 1998;52:239-41.
18. McIntyre RS, Konarski JZ, Wilkins K, Bouffard B, Soczynska JK, Kennedy SH. The Prevalence and Impact of Migraine Headache in Bipolar Disorder: Results From the Canadian Community Health Survey: CME. Headache. 2006;46(6):973-82.
19. Vienna University of Economics and Business Administration. Departament of Statistics and Mathematics. R Foundation for Statistical Computing. R Development Core Team(2006). R: a language and environment for statistical computing [texto na internet]. Vienna; 2009 [citado 2009 abr. 08]. Disponível em: http://www.R-project.org.
20. Fleck MPA, Louzada S, Xavier M, Chachamovich E, Vieira G, Santos L, et al. Aplicação da versão em português do instrumento abreviado de avaliação da qualidade de vida "WHOQOL bref". Rev Saúde Pública. 2000;34(2):178-83.
21. Bonnot, O, Anderson G.M., Cohen, D, Willer JC, Tordjman S. Are Patients With Schizophrenia Insensitive to Pain? A Reconsideration of the Question Clin J Pain. 2009;25:244-52
22. Philips C, Hunter M. Headache in a psychiatric population. J Nerv Ment Dis. 1982;34-40.
23. Davis GC, Buchsbaum MS, Van Kammen DP, Bunney WE Jr. Analgesia to pain stimuli in schizophrenics and its reversal by naltrexone. Psychiatry Res. 1979;61-9.
24. Earle A, Earle BV. The blood pressure response to pain and emotion in schizophrenia. J Nerv Ment Dis. 1955;121:132-9.
25. Merskey H, Gillis A, Marszalek KS. A clinical investigation of reaction to pain. J Ment Sci. 1962;347-55.
26. Gittleson NL. Psychiatric headache. A clinical study. J Ment Sci. 1961;107:403-16.
27. Alptekin K, Akvardar Y, Akdede BBk, Dumlu K, Isik D, Pirinçci F, et al. Is quality of life associated with cognitive impairment in schizophrenia? Prog Neuropsychopharmacol Biolg Psychiatry. 2005;29:239-44.
28. Hasanah CI, Razali MS. Quality of life: an assessment of the state of psychosocial rehabilitation of patients with schizophrenia in the community. J Royal Soc Prom Health. 2002;122(4):251-5.
29. Chan S, Yu IW. Quality of life of clients with schizophrenia. J Adv Nurs. 2004;45(1):72-83.
30. Pimenta CAM. Fundamentos teóricos da dor e de sua avaliação. Carvalho MMJD, organizador. Dor: Um estudo multidisciplinar. São Paulo: Summus; 1999b. p. 31-46.

31. Horng YS, Hwang YH, Wu HC, Liang HW, Mhe YJ, Twu FC, et al. Predicting health-related quality of life in patients with low back pain. Spine. 2005;30(5):551-5.
32. Cardoso CS, Caiaffa WT, Bandeira M, Siqueira AL, Abreu MNS, Fonseca JOP. Depressão na esquizofrenia; prevalência e relação com a qualidade de vida. Cad Saúde Pública. 2007;23(9):2035-48.
33. Cardoso CS, Caiaffa WT, Bandeira M, Siqueira AL, Abreu MNS, Fonseca JOP. Quality of life e dimensão ocupacional na esquizofrenia: uma comparação por sexo. Cad Saúde Pública. 2006;22(6):1303-14.
34. Makanjoula AB, Adeponle BA, Obembe AO. A comparison of quality-of-life in schizophrenia and affective disorder patients in a Nigerian tertiary hospital. Transcult Psychiatr. 2007;44(1):65-78.
35. Mason VL, Skevington SM, Osborn M. A measure for quality of life assessment in chronic pain: preliminary properties of the WHOQOL-pain. J Behav Med. 2009;32(2):162-73.
36. Terzian ACC, Andreoli SB, Razzouk D, Chaves AC, Mari JJ. Fertility and fecundity of an outpatient sample with schizophrenia. Rev Bras Psiquiatr. 2006;28(4):305-7.
37. Picardi A, Rucci P, Girolamo G., Santone G, Borsetti G, Morosini P. The quality of life of the mentally ill living in residential facilities Findings from a national survey in Italy. Eur Arch Psychiatry Clin Neurosci.2006;256:372-81.
38. Akvardar Y, Akdede BBk, Ozerdem A, Eser E, Topkaya S, Alptedin K. Assessment of quality of life with the WHOQOL-BREF in a group of Turkish psychiatric patients compared with diabetic and healthy subjects. Psychiatry Clin Neurosci. 2006;60(6):693-9.