ORAL HEALTH IN PSYCHIATRIC ADULTS IN ARGENTINA

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ABSTRACT

This cross-sectional descriptive study was performed at neuropsychiatric institutions in Buenos Aires Province. A randomized sample was selected of 384 20- to 65-year-old adults: 56 with mental disorders and undergoing a process of deinstitutionalization (DG), 220 institutionalized (IG) and 108 ambulatory adults with no diagnosis of mental disorder, considered as the control group (CG). Inclusion criterion was receiving oral healthcare at the same dentistry facility. To estimate the endogenous variable (oral health) we used DMFT Löe y Silness plaque index and gingival index (PI - GI). Diagnosed mental conditions were classified according to DSM IV criteria. Mean DMFT was 18.75 ± 6.19 for DG, and 19.67 ± 8.24 for IG. The difference between groups DG and IG was not significant (P= 0.7818). For CG the value was 14.54 ± 5.96. The correlation analysis between DMFT and age showed significant association and the values were: DG r=0.4423, IG r= 0.5056 and CG r= 0.3372. Missing teeth account for 80% in DG, 81.12% in IG and 48.76% in CG. Mean PI-GI values were 1.66 ± 0.72, 1.12 ± 0.52 in GD; 2.13 ± 0.55, 1.76 ± 0.47 in IG and 1.51 ± 0.52, 1.02 ± 0.38 in CG. The discrepancy between IP means for DG and IG were not significant (P> 0.05), whereas the GI values for both groups differed significantly at 5% (P< 0.05). Data analysis describes the loss of teeth as a residual consequence of oral disease, and the need to include rehabilitation in a healthcare model for the deinstitutionalization process in psychiatric adults.

Key words: *Mental disorders - deinstitutionalization - DSM IV- oral health.*

SALUD BUCAL DE ADULTOS PSIQUIÁTRICOS EN ARGENTINA

RESUMEN

La frecuencia de trastornos mentales ubica a esta problemática como un campo de intervención prioritaria en salud pública. El objetivo de este trabajo fue describir la situación de la salud bucal de adultos con trastornos mentales como evaluación ex-ante, para implementar un modelo de atención facilitador de la reinserción social. El estudio descriptivo y transversal se realizó en instituciones neuropsiquiátricas de la provincia de Buenos Aires. Se seleccionó una muestra aleatorizada de 384 adultos con rango etáreo de 20-65 años: 56 con alteraciones mentales en proceso de desinstitucionalización (GD), 220 institucionalizados (GI) y un grupo control de 108 adultos ambulatorios sin diagnóstico de alteraciones mentales (GC). Se consideró como condición de emplazamiento que los grupos fueran asistidos en el mismo servicio de odontología. Para estimar la variable endógena (salud bucal) se usaron los indicadores CPOD, Índice de placa y gingival de Löe y Silness (IP- IG). Los diagnósticos de los trastornos mentales fueron categorizados según criterios DSM IV. La media CPOD fue para GD 18.75 ± 6.19. GI registró valores 19.67 ± 8.24. Entre los grupos GD y GI la diferencia no fue significativa (P= 0.7818). Para GC los registros fueron 14.54 ± 5.96. El análisis de correlación entre CPOD y edad mostró una asociación significativa y los valores registrados fueron: GD r=0.4423, GI r= 0.5056 y GC r= 0.3372. En GD el 80% de los dientes están perdidos, en GI el 81.12% y en GC 48.76%. Los valores medios IP- IG fueron en GD 1.66 ± 0.72, 1.12 ± 0.52; en GI 2.13 ± 0,55, 1.76 ± 0.47 y en GC 1.51 ± 0.52, 1,02 ± 0.38. Las discrepancia entre las medias de IP para GD y GI no fueron significativas (P> 0.05), mientras que los valores IG para ambos grupos registraron significatividad al 5% (P< 0.05). El análisis de los datos describe como consecuencia residual de enfermedad bucal, pérdida de piezas dentales y la necesidad de incluir la rehabilitación en un modelo de atención para el proceso de desinstitucionalización de adultos psiquiátricos.

Palabras clave: *Trastornos mentales - desinstitucionalización - DSM IV - salud bucal.*

INTRODUCTION

Mental disorders are an increasing health problem in Latin America and the Caribbean [1]. By 1990, psychiatric conditions and neurological diseases were responsible for 8.8% of the total morbidity burden estimated according to disability-adjusted life years (DALY), which in 2002 was 22.2% [2].

According to a 2001 WHO report, 25% of the total population suffers from some type of mental or behavioral disorder at different levels of severity at some point in life [3].

Whether or not a person is considered to be ill depends not only on the personality disorder but also on the attitudes of society towards that type of con-

dition, reflecting the importance of social values in the process of mental health-disease.

The WHO defines mental health as a "state of well-being in which the individual realizes his/her own abilities, can cope with the normal stresses of life, can work productively and fruitfully and can make a contribution to his/her community " [4].

The Pan American Health Organization (PAHO) defines mental health as "a condition, subject to fluctuations due to biological and social factors, which enable individual to achieve a satisfactory syntheses of his own potentially conflicting, instinctive drives, to form and maintain harmonious relations with others and participate in constructive changes in his social and physical environment" [5] .

Studies to evaluate the prevalence of dental disease in the general population have increased in recent years in most industrialized countries. In contrast, there is little information available on adults with mental disorders and their need for treatment.

Psychiatric disorders affect behavior and lead to the occurrence and interplay of factors such as depression[6-8], and loss of abilities and skills due to years of institutionalization[9,10]. Infrequent visits to the dentist, drugs that reduce the flow of saliva [11,12] and poor oral hygiene habits are considered determining factors for oral diseases in this population[13,14].

Facial attractiveness has been found to affect social attitudes and actions, and is important in employment situations[15]. Social and interpersonal relationships based on communication skills, in which image has an all-important significance in post-modern society, are affected by the loss of tooth structure and function (phonetics, aesthetics).

The aim of this study was to describe the situation of the oral component in the health of adults with mental disorders as *ex-ante* information for implementing a healthcare model including rehabilitation, to facilitate socio-economic reinsertion during the process of deinstitutionalization.

MATERIALS AND METHODS

The *ex-ante* evaluation was performed at neuropsychiatric institutions in Buenos Aires Province with a universe of 1163 adults of both sexes. It was a cross-sectional, descriptive study. A randomized sample was selected of 20- to 65-year-old adults with mental disorders who were undergoing deinstitutionalization (DG), institutionalized (IG) and a control group of ambulatory adults without diagnosed mental disorders (CG). The inclusion criterion for the 3 groups was that they received care at the same dental healthcare facility.

Exclusion criteria

- Patients older than the economically active population (EAP).
- Patients with severe general alterations of the motor function.
- Patients at terminal stages of other general diseases occurring concurrently with their psychiatric pathology.

After authorization had been obtained from the relevant authorities and consent from families or guardians[16], clinical examinations were performed under natural light by an observer using a disposable mouth mirror and periodontal probe.

The DMFT indicator was used to quantify the data on morbidity-mortality and healthcare. The description was made according to the WHO[17] codes and recorded on an individual card and dental chart.

Oral hygiene and gingival condition were determined using Löe y Silness plaque and gingival indexes (PI-GI)[18].

Time spent at the institution as from the first date of entry was recorded for adults with mental disorders. If they had left and re-entered for periods shorter than one year, the first date of entry was considered for quantification purposes.

The diagnoses for mental disorders were transcribed from the clinical histories and classified according to DSM IV criteria[19].

Statistical analysis

For biometric and statistical treatment, the observations were presented as enumeration data on an ordinal scale. The arithmetic mean and median were estimated as central tendency data, and standard deviation and range as dispersion data.

The distribution of DMFT values was analyzed using Box Plot diagrams and symmetry-kurtosis, Shapiro-Wilk and Shapiro-Francia numerical tests.

Student's t-test, ANOVA, Chi square and regression analysis of variables were used to test the hypothesis. Pearson's r correlation coefficient was used. Man Witney, Kruskall Wallis and Spearman's non-parametric rho coefficient tests were used as non-parametric alternative.

RESULTS

The study sample consisted of 384 adults: 56 with mental disorders and undergoing deinstitutionalization (DG), 220 institutionalized (IG) and 108 ambulatory adults with no diagnosis of mental disorder, considered as control group (CG). Table 1 shows the details of the sample.

Graphic analysis of DMFT values shows normal distribution of data in groups DG and CG, with median values of 18 (range 5-32) and 14 (range 4-29) respectively. Group IG has non-Gaussian distribution with median value 20 (range 2-32).

Fig.1 (a, b and c) shows the results of the normality analysis using numeric Shapiro Wilk, Shapiro Francia and Assymetry Kurtosis methods:

The residual consequence of oral disease was enumerated using the DMFT index. For DG the arithmetic mean (SD) was 18.75 (6.19) affected teeth. (Table 2)

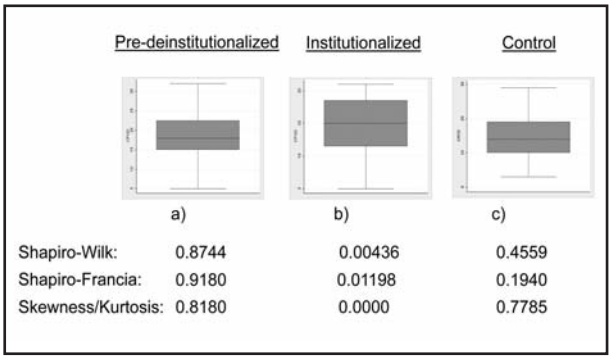

Fig. 1: DMFT: normality analysis.

The sample of institutionalized patients had an arithmetic mean of 19.67 affected teeth and dispersion of 8.24. Higher values were found for females than males, but the difference was not significant (P= 0.8934), as shown in Table 3.

Table 1: Sample characteristics. Variable: Age

	Pre-deinstitutionalized			Institutionalized			Control		
	n	Mean	S.D.	n	Mean	S.D.	n	Mean	S.D.
Male	28	46.25	9.31	111	49.32	12.13	50	40.72	10.84
Female	28	49.78	8.52	109	50.07	9.52	58	41.10	9.43
Total	56	48.02	9.02	220	49.69	10.90	108	40.92	10.06

P>0.05 between sexes /groups. Institutionalization time: Mean 13.86, S.D. 10.76 years. Pre-deinstitutionalization time: Mean 3.02, S.D. 2.90 years
No significant difference (P>0.05) was found between sexes in the study groups.

Table 2: Oral health (DMFT, PI, GI) expressed as mean (SD) according to sex for pre-deinstitutionalized psychiatric patients.

Sex	n	D	IE*	E	F	DMFT		PI		GI	
						Mean	S.D.	Mean	S.D.	Mean	S.D.
Female	28	0.96	0.32	17.53	1.11	19.93	6.56	1.62	0.68	1.12	0.51
Male	28	1.78	1.57	12.46	1.75	17.57	5.69	1.69	0.76	1.12	0.54
Total	56	1.37	0.95	15.00	1.43	18.75	6.19	1.66	0.72	1.12	0.52

*Indicated extraction DMFT/Sex P= 0.1565 PI GI/Sex P>0.05

Table 3: Oral health (DMFT, PI, GI) expressed as mean (SD) according to sex for institutionalized psychiatric patients.

Sex	n	D	IE*	E	F	DMFT		PI		GI	
						Mean	S.D.	Mean	S.D.	Mean	S.D.
Female	109	1.14	1.43	17.1	0.7	20.37	7.42	2.05	0.64	1.76	0.52
Male	111	1.36	2.55	14.83	0.24	18.98	8.95	2.2	0.43	1.75	0.43
Total	220	1.25	1.99	15.95	0.47	19.67	8.24	2.13	0.55	1.76	0.47

*Indicated extraction DMFT/Sex P= 0.8934 PI GI/Sex P>0.05

There was no significant difference between DG and IG in the DMFT index (P= 0.7818).

The correlation between the variables DMFT and age in DG is r= 0.4423 (P= 0.006). The determination coefficient for the variables age, sex and psychiatric pathologies included in the regression analysis is 0.2343 for number of decayed (D), missing (M) and filled (F) (P= 0.194). The value for IG is r= 0.5056 (P< 0.000). The determination coefficient for the same variables is r= 0.2714.

The results of the non-parametric Man Whitney and Kruskall Wallis tests in DG showed no significant difference (P= 0.1187 and P= 0.1195 respectively).

ANOVA was used to analyze DMFT values according to the medical diagnosis classification in the clinical histories, following DSM IV criteria. For IG adults, the differences in variances among the DMFT values for the classes analyzed were not significant. (Table 4)

In group DG no significant difference was found for DMFT values according to disorder, as shown in Tables 5 and 6. Table 6 shows the oral health situation in adults without diagnosed mental disorders, considered as the control group (CG):

Dental condition measured as the arithmetic mean of DMFT, was significantly higher in females than males (P= 0.02).

Table 4: Oral health (DMFT, PI, GI) expressed as mean (SD) for institutionalized patients according to mental disorder diagnosed.

Pathology	Frequency	DMFT		PI		GI	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
Schizophrenia	96	20.98	7.96	2.18	0.54	1.82	0.46
Mental retardation	73	18.31	7.84	2	0.58	1.64	0.46
Psychosis	35	19.20	9.83	2.23	0.46	1.81	0.50
Alcohol Use	16	19.00	7.59	2.13	0.54	1.76	0.51
Total	**220**	**19.67**	**8.24**				

DMFT P= 0.2023 PI GI P>0.05

Table 5: Oral health (DMFT, PI, GI) expressed as mean (SD) for pre-deinstitutionalized patients according to mental disorder diagnosed.

Pathology	Frequency	DMFT		PI		GI	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
Schizophrenia	42	19.78	5.88	1.62	0.72	1.09	0.54
Mental retardation	10	15.8	6.97	1.78	0.73	1.19	0.50
Alcohol Use	4	15.25	4.99	1.75	0.73	1.25	0.36
Total	**56**	**18.75**	**6.2**				

DMFT P= 0.093 PI GI P>0.05

Table 6: Oral health (DMFT, PI, GI) expressed as mean (SD) according to sex for ambulatory adults (control group).

Sex	n	D	IE*	E	F	DMFT		PI		GI	
						Mean	S.D.	Mean	S.D.	Mean	S.D.
Female	58	5.63	2.47	8.75	2.71	15.59	6.27	1.57	0.42	1.07	0.32
Male	50	5.27	2.7	6.9	2.32	13.32	5.37	1.45	0.61	0.96	0.44
Total	108	5.46	2.53	7.92	2.56	14.53	5.96	1.51	0.52	1.02	0.38

*Indicated extraction DMFT/Sex P= 0.2 PI GI/Sex P>0.05

The regression analysis for the variables age and DMFT indicator showed a significant positive correlation r= 0.3372 (P= 0.0002); while the determination coefficient was 0.1566.

A significant difference was found between DMFT values (difference in variances) for IG, DG and the group of ambulatory adults without diagnosed mental disorders (CG) who received care at the same dental healthcare center as the others (ANOVA) P= 0.0000, Bartlett's Chi2= 0.0000. The differences determined by the non-parametric Mann- Whitney test were also significant (P= 0.0358).

Fig. 2 shows DMFT percentages, establishing that the greatest burden of oral disease with it residual consequence is the loss of the tooth (component M in the indicator).

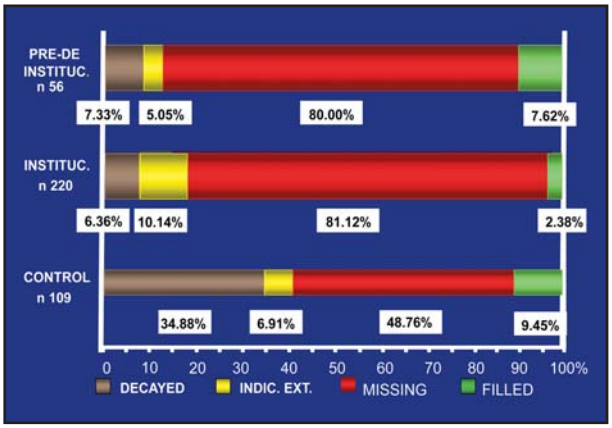

Fig. 2: DMFT indicator (percentages) in Pre-deinstitucionalized Patients, Institutionalized Patients and Control Group.

DISCUSSION

The results of this study showed high prevalence or caries, poor oral hygiene and moderate gingival inflammation.

The clinical indicators allowed quantification of dental morbidity-mortality and its residual consequence, missing teeth, which was the prevailing component in the DMFT indicator –81.12% in IG, 80% in DG, with no significant difference between them. The number of missing teeth in the control group was significantly lower, at 48.76%. Due to the scope of the study, it was not possible to determine whether the cause of missing teeth was dental caries or periodontal disease.

Research in developed countries has reported more precarious, relatively poorer oral health in patients with mental disorders than in the general population in the area where the studies were conducted [20].

The results of our research agree with those of Angelillo et al.[21] on a group of 297 institutionalized subjects, mean age 55.1 and 12 years institutionalization. In our study, mean patient age in IG and DG was lower: 49.65 and 48.02 respectively, because they belonged to the economically active population (age 14 – 64 years); nevertheless, DMFT values were higher (IG 19.67, DG 15.95). Both groups have a higher burden of disease in missing teeth (M), with values of 19.95, compared to 13.6 in Italy. Studies by Pregliasco et al.[22] on 219 mentally retarded adults institutionalized near Milan, Vigil et al.[23] on 407 in Denmark, and Velazco et al.[24] in Spain all found higher DMFT values: 23.1, 26.1 and 24.9 respectively. They reported significantly higher values for missing and filled teeth in females than males. Zusman S.P. et al. [25] reported similar DMFT values in Israel, with 23.8 for the D component 2.7 for M and 1.1 for F. 66% of the patients were edentulous. These data match those reported by Hernández-Suástegui and Vivanco-Cedeño[26], although they were unable to determine whether the situation was due to dental disease or age. Our findings suggest that this population is treated using healthcare models that cause a high level of missing teeth.

The data from the study sample seem to show that the diagnosed mental disorders classified according to DSM IV criteria do not cause differences in the clinical indicators DMFT, PI-GI. In Taiwán, Kuan –Yu Chu et al.[27] found that for schizophrenic patients of mean age (SD) 50.8 (10.8) years and institutionalization time 8.4 (5.7) years, DMFT values of 13.9 (8.5), which are lower the ones described in our study.

These results allowed us to infer that the target population has unlimited need for treatment and limited resources for resolution. Only 2.38% of the surfaces are resolved by restorative treatment in IG and 7.62% in DG, and for this component, our values are higher than those reported by Rekha R et al.[28] and lower than those reported by Velazco et al.[24]

The R-squared coefficient for the variables age, sex and pathology which were included in the regression analysis, with values of 0.2343, 0.2714 and 0.1566 for DG, IG and CG, respectively, shows that only 23.43% in DG, 27.14% in IG and 15.66% in CG of total decayed, missing and filled (DMF) teeth can be attributed to the variables studied.

One conflict that arises from the situation is that this population is captive demand of the healthcare system, becoming a natural monopoly with exclusive control of the productive system.

Another conflict is that mental disorders require multidisciplinary reflection, with real independence of approaches and assistance criteria relevant to the needs, including the oral health component.

The data show that there is high risk of oral diseases and that the highest residual consequence is missing teeth. Thus, including rehabilitation of oral functionality would generate value to the organizational logic of a comprehensive, cross-sector program for deinstitutionalization of adults with mental disorders, facilitating socioeconomic reinsertion.

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