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ORIGINAL PAPER

Mauro Giovanni Carta · Mario Antonio Reda · Maria Eugenia Consul · Veronica Brasesco
Marcelo Cetkovich-Bakmans · Maria Carolina Hardoy

Depressive episodes in Sardinian emigrants to Argentina: why are females at risk?

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Abstract *Background/Objective* To compare the frequency of ICD-10 depressive episodes in a community sample of Sardinian immigrants in Argentina and a community sample of Sardinian residents in Sardinia, Italy. *Method* A search of telephone directories provided all subscribers with Sardinian surnames in the Argentinean area involved. A 75.8% of all subjects thus identified took part in the study (n = 210). The characteristics of randomisation methods used to identify the community sample in Sardinia (n = 1040) have already been published elsewhere. All subjects were interviewed using the Composite International Diagnostic Interview Simplified. *Results* A higher frequency of depressive disorders was observed among the Sardinian immigrants in Argentina (26.7 vs. 13.5%, $P < 0.0001$). Females in particular showed a higher risk with respect to the Sardinian sample resident in Sardinia. *Discussion* On comparison of the present findings with the lifetime rate of depressive episodes in Sardinian immigrants in Paris (France), reported in a previous research study, a lower prevalence was observed among the latter group than in Sardinian immigrants in Argentina but the young male immigrants in Paris were at risk. *Conclusion* The results obtained seem to suggest that emigration to a country where economic conditions have since dramatically changed may predispose subjects to depressive disorders, particularly when compared to the percentage of affected subjects in their native population and among subjects who had emigrated to more economically stable countries. Further epidemiological studies are warranted in order to confirm the present results and to clarify the determinants of the major risk for females in such a condition.

Key words migration – depressive episodes – mood disorders – transcultural psychiatry – community survey – risk gender

Prof. M.G. Carta (✉) · M.C. Hardoy
Division of Psychiatry
Dept. of Public Health
University of Cagliari
Via Liguria 13
09127 Cagliari, Italy
Tel.: +39-070/42760
+39-335/499994
E-Mail: mgcarta@tiscali.it

M.A. Reda
Istituto di Psicologia Generale e Clinica
University of Siena
Siena, Italy

M.E. Consul
Asociacion Medica Primo Camilletti
La Plata, Argentina

V. Brasesco
Universidad del Salvador
Buenos Aires, Argentina

M. Cetkovich-Bakmans
Asociacion Argentina Psiquiatria Biologica
Buenos Aires, Argentina

Introduction

Several studies indicate the absence of a generalised psychopathological risk among emigrants [1]. Murphy et al. [2] maintain that psychosocial studies should be undertaken to identify the factors that may, under given conditions, imply an increased risk of psychiatric disorders among emigrants. Previous research studies evaluated specific migrant conditions such as motivation to migration (settlers, refugees and "gastarbeiters") [3], distance from the host culture (religion, language), legal residential status and inability to develop structures for social mediation [4] as potential psychopathological risk factors. The well being of those who emigrate from developed countries to countries in which economical conditions

have dramatically changed in recent years has not been studied from an epidemiological point of view.

The aim of the present study was to evaluate the frequency of psychiatric disorders in a sample of subjects of Sardinian origin resident in Argentina and to compare the results with data obtained in the general population of Sardinians resident in Sardinia (Italy).

The study was carried out between November 2001 and February 2002, the same period during which Argentina was in the middle of a heavy social and economical crisis.

Methods

The sample of emigrants was made up of 1st and 2nd generation emigrant Sardinians resident in La Plata, Bahia Blanca and Trelew (Argentina). A search in the telephone directories provided all subscribers in the area studied with common Sardinian surnames. The "Circolo Mario Segni", a centre for Sardinian immigrants in La Plata, helped researchers to contact the probands and to find other immigrants whose names were not in the telephone directories and whose names were in the lists of the "Circoli" of Sardinian Immigrants. From all subjects identified as probands (n=277), 210 (75.8% of the total), took part in the study and 67 (24.1%) were not willing to be interviewed. Only five subjects (all from the Bahia Blanca area) out of the total number contacted through the telephone directories were not listed in the registers of the "Circoli", whilst 23 individuals identified from the "Circoli" registers were not listed in the telephone directories. A total of 138 subjects (65.7%) resided in urban areas.

The sample examined in the Sardinian project was made up of 1040 subjects, 393 were resident in the town of Cagliari (Italy); 344 in rural areas (Aritzo, Belvì, Scano Montiferro, Tresnuraghes); 303 in a mining district (Fluminimaggiore and Buggerru). The sample of Sardinians resident in Sardinia was extracted by randomisation techniques subsequent to stratification according to age and sex, from the registrar's records of populations of reference. More detailed issues concerning sampling methodologies have been illustrated in previous publications [5]. Throughout the three Sardinian areas concerned, 79.2% of all subjects identified (1313 subjects) agreed to take part in the study whilst 164 (12.5%) refused to participate and 109 (8.3%) could not be traced; the final sample did not differ with respect to the population of origin with reference to the variables applied in stratification. Basic data were obtained through application of the following tools: a socio-anagraphic questionnaire, a questionnaire concerning contacts with health and social services and a questionnaire on the history of migration and current links with Sardinia and groups of immigrants in Argentina. All probands were interviewed using a Simplified version of the Composite International Diagnostic Interview [6, 7] either in Italian or Spanish according to the interviewer's preference. The original French version of this tool was translated into Italian and Argentinean Spanish and back-translated into the original language under blind conditions with respect to the first translation. Approval of the final version was obtained from the original authors. A test–retest reliability study was preliminarily performed. Clinical interviews of immigrants were performed by a bilingual (Spanish/Italian) psychiatrist (MCH) or psychologist (MEC). A similar methodological approach had been applied in the Sardinian study.

Data analysis

Lifetime prevalence for ICD-10 depressive episodes [8] and the Odds Ratio association (univariate analysis) of depressive episodes (dependent variable) were calculated according to sex (e.g. Argentinean resident female against Sardinian resident female, Argentinean resident=1). A similar procedure was applied to assess the 18–44 and 44-plus age groups. Statistical significance was calculated using the χ^2 test in 2×2 tables. Odds Ratio confidence intervals were calculated through application of the method of Miettinen [9]. As the group of emigrants showed an over-representation of older adults (>45 years) when compared with the population of Sardinian residents in Sardinia, comparison of the overall sample was carried out subsequent to standardisation according to age and sex, assuming as standard population Sardinians in Sardinia. The sample was not stratified according to place of residence (town/country) as all reference towns: Cagliari (Sardinia), La Plata, Trelew and Bahia Blanca (Argentina) were small urban settings that were not classifiable as metropolitan areas.

Results

A higher frequency of depressive disorders was observed among the Sardinian immigrants in Argentina compared to native residents of Sardinia.

Table 1 illustrates the distribution according to age and sex of both samples studied.

Table 2 shows the lifetime prevalence of depressive episodes observed prior to the interview in both samples studied. After standardisation, depressive episodes were markedly increased among emigrants to Argentina with respect to Sardinians in Sardinia (26.7 vs. 13.5%, OR=2.3, C.L. 95% 1.6–3.2, P<0.0001).

Both age classes of Sardinian immigrants in Argentina presented a higher risk of depression than Sardinian residents in Sardinia (age 18–44: 27.9 vs. 15.4%, OR=1.9, C.L. 95% 1.1–3.2, P=0.018; and age >44: 25.6 vs. 12.5%, OR=2.6, C.L. 95% 1.5–4.5, P<0.001). With regard to sex, females were characterised by higher frequencies of depressive episodes (36.7 vs. 15.2%, OR=3.2, C.L. 95% 2.1–4.9, P<0.001).

None of the 81 (38.5%) first generation immigrants had been affected by depressive episodes prior to migration approximately 46.3±5.1 years previously.

Discussion

The main result of the present study was represented by the finding that Sardinian emigrants to Argentina presented a higher risk of depressive episodes than Sardinian residents in Sardinia.

Table 1 Percentage of subdivision according to age, and sex of the samples

	Sardinians in Argentina	Sardinians in Sardinia (Italy)
N	210	1040
Male	98 (46.6%)	461 (44.3%)
Female	112 (53.3%)	579 (55.7%)
Age 18–24	5 (2.4%)	146 (14.0%)
Age 25–44	62 (29.5%)	353 (33.9%)
Age 45–64	85 (40.5%)	310 (29.8%)
Age >64	58 (27.6%)	231 (22.2%)

Table 2 ICD-10 depressive episodes, lifetime prevalence by sex and age after standardisation according to age and sex

	Sardinians in Argentina	Sardinians in Sardinia	χ^2 1DF	*P*	OR	CL 95%
Female	43 (36.7%)	87 (15.2%)	28.8	0.001	3.2	2.1–4.9
Male	14 (15.0%)	53 (11.8%)	0.61	0.432	1.3	0.7–2.5
Age 18–44	26 (27.9%)	77 (15.4%)	5.6	0.018	1.9	1.1–3.2
Age >44	30 (25.6%)	68 (12.5%)	11.7	0.001	2.6	1.5–4.5
Total	56.2 (26.7%)	140 (13.5%)	22.4	0.001	2.3	1.6–3.2
Total (unweighted)	56 (26.7%)	140 (13.5%)	22.4	0.001		

Standard population: Sardinians in Sardinia (Italy)
Females versus males in the Argentinean sample (χ^2=11.2, *P*=0.001, OR=3.1, C.L. 95% 1.6–6.5); Age 18–44 vs. >44 in the Argentinean sample (χ^2=0.1, *P*=0.892, OR=0.9, C.L. 95% 0.4–1.7)

The results obtained, together with similar findings from a study of Sardinian immigrants in Paris appear to confirm the disadvantageous condition of emigrants. The results of the Parisian study seem to indicate an increased risk for psychiatric disorders among Sardinian immigrants, although no increased risk for depressive episodes was focused throughout the overall sample; indeed, depressive episodes were over-represented only in young male immigrants [5]. Moreover, the lifetime rate of depressive episodes in Sardinian immigrants to Paris was lower than the lifetime rate of depressive episodes in Sardinian immigrants to Argentina evidenced by the present survey (19.6 vs. 26.7%, χ^2=12.3, *P*<0.001). Accordingly, the results of the present study seem to suggest that emigration to a country that subsequently undergoes dramatic economic problems (for example, Argentina) may produce depressive disorders not revealed in emigrants to economically stable countries.

In Argentina, Sardinian immigrant females (but not males) are at higher risk with respect to their native counterparts. On the contrary, the study performed on Sardinian immigrants in Paris highlighted an opposite trend: men, particularly young men, were at considerably higher risk than their native population [5].

It is most important that the diametrically opposite economic conditions in which the two migratory waves occurred is underlined. Those Sardinians who emigrated to Paris [10] in the 1970s came mainly from the poor rural areas. Paris offered successful work opportunities but also a new world based on competition. Even though France is closer to Sardinia than Argentina, in particular the young people were at risk of losing touch with their traditions and family ties [10]. The use of community surveys as a research model is particularly advantageous not only in the verifying, but also in generation, of hypotheses. Analytical assessment of data obtained in the present study and comparison with previous data on Sardinian immigrants in Paris gives rise to the hypothesis that a specific gender-related risk of depression may exist.

One report concerned with emigration from Ireland, on studying attitudes towards emigration reported how men who were contemplating emigration obtained higher scores for self-esteem, whilst women gained lower self-esteem scores. Women who had thought about emigration had higher depression scores than women who had not contemplated such a move. This pattern was not evident for men. The results indicate that psychologically women view the prospect of emigration less positively than men [11].

A possible interpretation of the Sardinian and Irish migration studies is that migrated women, with a possible more frequent "depressive" coherent interpretation of self and knowledge [12] may be increasingly involved in difficult situations when the safety of the family is threatened by economical instability.

Consistent with constructivist cognitive concepts [12], a "depressive style of knowledge" would imply a system whereby the individual explicitly attempts to maintain a coherent image through application of a theory which contemplates a pessimistic view of the world and the future, assuming a sort of "defeat-oriented hyper-responsability", tacitly challenging the losses experienced. Paradoxically, when faced with stressful conditions of challenge for social change (as in the Parisian study), depressive attitudes may exert a protective factor. The latter is particularly true if the "compulsive self-responsabilisation" towards the newly originated socially successful opportunities modulates the search for new roles capable of providing subjects with an adequate income and a sense of leadership. At the same time, however, a role that is more socially accepted by the group of origin and is perceived as being more "traditional" should be maintained. Several interesting lines of psychosocial research have in fact hypothesised that the cultural transmission tends to be perpetuated when the particular cultural institutions (in this case the social role) are perceived by the individual (and by the other members of the group) as an integral part of the evolving self, but at the same time, are able to meet new needs and requirements [13].

The latter hypothesis was expounded to explain the absence of conflicts and the lower risk for depression in a sample of women employed as nurses (an innovative role preserving the issue of traditional tasks) in a rapidly changing African society [14].

Thus, males may be at greater risk in situations of rapid improvement where the competitive challenge

becomes pressing as the risk of "goal striving stress" increases [15].

In a review of studies relevant to temporal trend in depression in western societies, Klerman and Weissman [16] found evidence for an increase in the rate of major depression in cohorts born after the Second World War; a decrease in the age of onset and an increase in rates of depression was revealed for all ages during the period between 1960 and 1975. Evidence of a narrowing of the differential risk for men and women due to a greater increase in the risk of depression among young men than young women was also observed. The Cross National Collaborative Group argued that the variations in short-term for major depressive disorders by country was evidence that these rates were sensitive to changing historical, social, economic, or biologic environmental conditions (1992) [17].

The hypothesis of male sensitivity to goal striving stress may also be applied to understanding why Ireland, with the best European economic performance during the period 1980–2000 (the only European country with both increased mean income and decreased unemployment rate) reports an increase in male suicides of around 130% [18]. Over the last 20 years suicides have decreased all over Europe but not among the Irish men; on the contrary, the suicide rate among Irish females has decreased.

In addition to the above, it may also be hypothesised that the increased rate of depression among highly competitive subjects may be associated to an increase of bipolar disorders and unipolar depressive disorders among subjects living in conditions of economic hardship. It has been observed how the methods currently employed in epidemiological psychiatry are not capable of distinguishing between bipolar disorders and unipolar major depressive disorders [19, 20]. Compared to Major Depression, bipolar disorders are characterised by an earlier onset, a male/female ratio of 1/1 compared to 3/1 and by a frequently observed comorbidity with substance abuse [19]. Indeed, when compared to the sample of subjects resident in Sardinia, emigrants in Paris presented a higher frequency of depressive episodes in youths and male subjects and an increased frequency (particularly in young people) of comorbidity with substance abuse [5]. In the sample of Argentinean emigrants, as previously stated, the highest risk was observed amongst adult females.

It should also be underlined how the decision to emigrate, as long as 40 or 50 years previously, in the case of Sardinians emigrating from rural areas to Argentina or to Paris in the 1970s, was invariably taken by the husband. In a society where marriage was characterised, particularly for the woman, by considerable social pressure, the wife merely followed, often several years after the departure of her husband. Therefore, we hypothesise the frequent displaying of traits of "compulsive self-responsabilisation" among the women.

Study limits

The hypothesis arising from the above discussion may be considered as a heuristic point due to several methodological aspects limiting the generalisation of the results of the present study. These are constituted by the small sample size of the Sardinian immigrants, the sampling techniques used (based on search of telephone directories and key informants rather than on public records), the unspecified degree of representation of this sample compared to the immigrant population in Argentina. An association of the two techniques used afforded the greatest possible number of immigrants. The Sardinian "circoli" in Argentina frequently have official relations with political institutions in the country of origin and have often acted as intermediaries for relatives in the country of origin seeking their kin. The use of telephone directories, already applied for the Parisian study, is somewhat facilitated in II generation immigrations to Argentina, as subjects maintain the surnames of both parents. The similarity of findings obtained by both methods provides indirect confirmation of the validity of methods.

An additional limitation is represented by the marked lack of homogeneity in the distribution of the two samples examined compared to age, which may be explained due to the considerable influx of Sardinian migration to Argentina from 1948 to 1960, whilst in Paris it took place between the 60s and the 80s (it was partially corrected by the standardisation).

Studies performed to investigate migration from Sardinia have revealed the following: a male/female ratio within the range of those reported in the leading community surveys, although at the lower limits reported for subjects resident in Sardinia [5]; a lower male/female ratio among immigrants to Paris with a higher risk for young males [5]; a male/female ratio situated at the upper limit of the range reported in community surveys and in the Argentinean study (present study). We attempted to explain to what extent socio-economic conditions linked to the process of migration might have affected the gender associated risk of depression among the homogenously extracted Sardinian populations. Moreover, the present study is limited by the impossibility of comparing frequency of depressive episodes with those of an Argentinean reference population who, in view of the precarious conditions, may well have been at risk themselves.

Conclusions

Emigration to a country subsequently affected by dramatic economic problems may produce depressive disorders, which are not observed in emigrants to economically stable countries. Further epidemiological studies are warranted in order to confirm the present results and to clarify the determinants of the major risk for females in such a condition.

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