

Participation in Leisure Activities: Is It a Protective Factor for Women's Mental Health?

Milena P. Pondé

Medical and Public Health School, Fundação para o
Desenvolvimento da Ciência, Bahia, Brazil

Vilma S. Santana

Instituto de Saúde Coletiva, Universidade Federal da Bahia, Brazil

The hypothesis that participation in leisure activities is a protective factor for women's mental health was evaluated in a community-based cross-sectional study of a poor neighborhood in the city of Salvador, Brazil. Female adult workers ($n = 552$) were interviewed from 470 randomly selected families. Participation in leisure activities is defined as any reported engagement in leisure activities during days off in the month preceding the interview. Scores from a validated mental morbidity instrument were used to assess symptoms of anxiety and depression. A negative association between participation in leisure activities and several anxiety/depression symptoms was found among women reporting no job satisfaction and low family income (Prevalence Ratio = 0.27; 95% Confidence Interval from 0.09 to 0.88). Participation in leisure activities may help maintain mental health under adverse life conditions.

KEYWORDS: *Leisure, mental health, women, protective factors*

Introduction

One the major challenges facing public health policies is the promotion of mental health and the prevention of mental illness. These actions require the identification not only of major determinants and modifiable risk factors, but also of less known protective factors. Social and emotional support from friends, church and family has been described as beneficial for both general and mental health (Varon & Riley, 1999; Jacomb et al., 1999; Pratt, 1991). A recent body of research has pointed out the benefits of leisure for health and well being using several outcome variables, such as quality of life, life satisfaction and mental "problems" that run from mere stress to psychological symptoms to psychiatric illnesses. Among aging individuals, for instance,

Dr. Milena Pondé is a psychiatrist and a Ph.D. in public health at the Medical and Public Health School, Fundação para o Desenvolvimento da Ciência, Bahia, Brazil. Vilma S. Santana, Ph.D. in epidemiology, is a professor at the Instituto de Saúde Coletiva, Universidade Federal da Bahia, Brazil.

This work draws upon the first author's Master's dissertation and was completed during the year she spent at the Douglas Hospital Research Center, Canada, as part of a visiting scholar program sponsored by Brazil's CAPES/Ministry of education and CNPq/Ministry of Science and Technology (Proc. No. 52067/94-5).

Correspondence concerning this article should be addressed to Milena Pondé, Instituto de Saúde Coletiva, Rua Padre Feijó, 29/4o andar. Salvador, Bahia, Brazil. CEP: 40110-170. E-mail: pondem@ufba.br

life satisfaction was positively associated with participation in leisure activities (Hersch, 1990; Patterson & Carpenter, 1994) and with an increased variety of leisure activities (Bevil et al., 1993). Among women attending groups of mothers, positive associations between time spent in leisure activities and indices of mental health or life satisfaction were also found (Wearing, 1989). Also, poor obese women who engaged in leisure activities reported increased self-esteem (Dattilo et al., 1994). University students who reported participation in leisure activities were more likely to experience decreased academic stress than those who did not perform leisure activities (Ragheb & Mckinney, 1993). Although there are few studies of the possible beneficial effects of leisure for mental health in the general population, their findings are consistent with those reported for special groups. For example, participation in leisure activities in a metropolitan area was correlated with reports of a high quality of life (Jeffres & Dobos, 1993). In a longitudinal study, leisure activities performed with family members and other social groups were predictors of good mood (Stone, 1987).

Most research findings support the hypothesis that leisure acts as a buffer against the adverse effects of psychosocial stressors (Wheeler & Frank, 1981; Reich & Zautra, 1981; Caltabiano, 1995). Leisure, when characterized as perceived freedom, appears to reduce stress, although in Coleman's (1993) study, social support was not found to act as a stress buffer. These findings were not consistent with those reported by Iso-Ahola & Park (1996), however, who showed that social support, represented by leisure activities performed in the company of others, moderates the effects of stress on mental health. These two studies were performed in distinct populations, however, which may lead to incompatible goals and expectations regarding the choice of leisure activities that are best suited for a given population.

In sum, a number of studies have supported the notion that leisure has beneficial effects for mental health. These effects manifest themselves through direct improvements in the quality of one's life and are usually defined as increased good mood (Mannell, 1980; Hull, 1990), happiness and enjoyment (Csikszentmihalyi & LeFever, 1989). Leisure has also been shown to help buffer the mind against life's daily stressors (Iso-Ahola, 1994). These research findings support recommendations for the inclusion of leisure activities in mental health programs, not only because of their well recognized rehabilitating effects for the mentally ill (Sigafos & Kerr, 1994; Lehman, 1995), but also because of their potential for promoting general well being (Iso-Ahola, 1997). The congruity of these research findings gives considerable support to the hypothesis that participation in leisure protects mental health. However, cultural differences and the prevailing harshness of living and working conditions in the Third World limit the degree to which these findings can be generalized outside highly industrialized countries.

Many studies in social psychiatry support the centrality of the socio-economic determinants of mental health. This framework has been adopted in several epidemiological studies in Latin America, particularly after the beginning of a deep economic crisis that affected several countries and led

to increased poverty, violence and unemployment. Brazil is the world leader when it comes to social inequity, with 35.4% of its population living below the poverty line¹ (Iunes, 1995). In the Northeast region, this proportion climbs to 60.3% (Iunes, 1995). The adverse effects of poverty on mental health are well documented in several studies carried out in the U.S., Europe and Latin-America (Desjarlais et al., 1995; Dohrenwend et al., 1993; Almeida-Filho, 1987). Surveys conducted in the city of Salvador, capital of the State of Bahia, Brazil, reveal a strong association between poor mental health, on the one hand, and poor living and working conditions, on the other. For example, in a study of a deteriorated historical area of Salvador, where the population consists principally of prostitutes and petty criminals, the prevalence rate of mental disorders was 49.0% (Coutinho, 1976). Also, low education levels and low socioeconomic status were associated with prevalence of neurosis (Santana, 1982), minor psychiatric disorders (Almeida Filho et al., 1985), and a number of psychiatric symptoms (Almeida Filho, 1987; Santana et al., 1997). In several surveys, women were more likely to report psychological symptoms than men were (Santana, 1982; Almeida et al., 1984; Aguiar, 1988). Also, a study focusing on the living and working conditions of women as determinants of mental disorders revealed that women with informal jobs, an indicator of poverty, are more likely to have high psychological symptoms scores than those with jobs with a formal contract (Santana et al., 1997).

Although a number of studies have already established that poverty and poor work conditions are risk factors for women's mental health, little is known about the effects of leisure on their mental health, particularly under poor living conditions. This study evaluates the hypothesis that participation in leisure activities is a protective factor for women's mental health, as measured by anxiety and depressive symptoms. The covariates of education, family income, occupation and family-related variables are examined as possible confounding or intervening factors.

Methods

The data were obtained from a community-based cross-sectional survey of a poor neighborhood of Salvador, a city of 3.5 million inhabitants (greater metropolitan area) and capital of the state of Bahia in Northeast Brazil (Santana et al., 1997a). The survey evaluated the relationships between mental health status, living and work environment, and coping strategies among women, and was designed for use in community health planning. The investigation focussed on women because previous findings had indicated that female workers ran a higher risk of minor psychological disorders than men did (Coutinho, 1976; Santana, 1982; Almeida Filho et al., 1985). Out of an estimated 5,732 households, which included the 16,050 individuals living in

¹The author defines poverty as total family income per capita less than 25% of the legal minimum wage.

the study area, 534 residences were selected using random area cluster sampling. An aerial photographic map of the study area, showing each domicile, was used for defining sampling areas of approximately the same size. The number of households was estimated from the average number of domiciles in each sampling area and the average number of family members (Bahia, 1984) required to obtain the sample size defined in the study (Santana et al., 1997a). The lack of complete address registries or of easy ways of locating households based on addresses, particularly in low-income areas of Brazil, are the major reasons for using this procedure. The use of geographic reference sampling facilitates the identification and selection of households and is a common strategy in household surveys (Santana et al., 1997). Thirteen residences refused to participate, 21 had no inhabitants, and in 30 domiciles, residents were not found after three visits at different hours of the day. In the final 470 families interviewed, the investigators identified 673 women over 13 years of age. The present study is a secondary data analysis of the original study database. Because of the focus on work conditions, only women who reported having an occupation, either a paid job or unpaid work for their own families, were eligible. From the total sample of women, 39 (5.8%) were excluded because they were currently unemployed, retired or students with no reported time spent in housework for their families. Of the remaining 634 eligible subjects, the data were incomplete for 74 (11.7%) and inconsistent for eight (1.3%), amounting to another 82 (12.8%) deleted observations. The final study population consisted of 552 women.

During the first visit, a family respondent was informed of the study's purpose, the confidentiality of information and of the institution responsible for the research, namely, the Department of Preventive Medicine at the Federal University of Bahia. Medical students collected the data using questionnaires. Self-report instruments were avoided because of the high proportion of illiterates. After verbal consent was obtained, questionnaires were used for collecting socioeconomic data from each family member. The women were asked to complete special forms on work conditions. For absentee working women, a subsequent visit was arranged according to their time schedule. The *Questionário de Morbidade Psiquiátrica de Adultos*, QMPA, (Adult Psychiatric Morbidity Questionnaire) a validated psychiatric symptoms questionnaire, used in several psychiatric studies in Brazil (Santana 1982; Almeida-Filho et al., 1985; Almeida Filho et al., 1997; Andreoli et al., 1994; Santana et al., 1997b), was used for assessing mental health status. The QMPA comprises 44 yes/no questions (Appendix 1) on anxiety, alcohol consumption, depression, sleep disturbances and somatomorphic disorders, among others. Affirmative answers were added together for estimating individual scores. Validity studies show a sensitivity of 83.0%, specificity of 71.0% and a Kappa Index of 0.88 (Santana, 1982). Because this study focuses on anxiety/depression symptoms, a QMPA sub-scale limited to all sixteen anxiety/depression symptoms, named QMPA-SAD, based on Andreoli et al (1994), was used (Appendix 2). In the previous factor analysis of the QMPA questions, these symptoms were identified as a single isolated component of depression and

anxiety syndromes (Andreoli et al., 1994). Scores were estimated by counting affirmative answers for lack of appetite, sleep disturbance, poor concentration, headache, weakness, aggressive behavior, sadness/tiredness, *globus hystericus*, i.e., feeling a lump in the throat, trembling, irritation crises, irritability, crying spells, suicidal ideas, inability to work due to nervousness, isolation and chest tightness. Scores were analyzed as a dichotomous variable with a cut off at the 1st decile (high: ≥ 4 ; low: < 4).

Occupational history, work conditions and participation in leisure activities were assessed using non-standardized questionnaires developed by the research staff. Women were asked about their occupation, number of hours devoted to paid and unpaid work per week, and whether they had job satisfaction or intended to change jobs. It is worth noting that hours of unpaid work refers to the time women spend performing household chores, such as taking care of children, cleaning, cooking, washing clothes, etc. Family members who do not spend substantial time doing this type of activity reported devoting no time to housework. Also, the women were asked if they had had any days off in the past month, the number of days off per week, and whether they spent these days off in leisure activities.

The main independent variable of participation in leisure activities during days off in the past month was assessed using the following questions: "In the past 30 days, did you have days off? How many days off did you have? What did you do during your days off? Did you continue to work? Did you participate in leisure activities? Which leisure activities were you involved in?" A list of the most common leisure activities performed by women living in the study area was drawn up on the basis of reports from preliminary informal contact with community members. A blank space was used to register unlisted leisure activities.

Sociodemographic covariates were: age, marital status (married versus unmarried), education (completed versus uncompleted elementary school), pre-school age children at home (none versus one or more), family income/month (high: \geq US\$ 299.00; low: $<$ US\$ 299.00), and position in the family (family head versus not the family head). Work-related variables were: job satisfaction, intention to change jobs, sharing of housework (yes or no), and total work time (low: $<$ 8 per day; high: \geq 8 hours per day). Since these variables have been used in describing risk factors for women's mental health (Santana, 1982; Almeida Filho et al., 1987; Dohrenwend et al., 1992; Desjarlais et al., 1995; Santana et al., 1997a) or in describing associations to leisure participation (Wearing, 1989; Dattilo et al., 1994), they were therefore included in the model for their possible confounding and modifying effects on the associations under investigation. Continuous variables, such as age, family income and total work time, were categorized and modeled as dummy variables because they did not fit the assumption of linearity (Hosmer & Lemeshow, 1989).

Prevalence ratios (PR) were used for assessing associations and their corresponding 95% Confidence Intervals (CI) using the Base-test method (Rothman & Greenland, 1998). Unconditional logistic regression with back-

ward modeling strategy was used to estimate prevalence ratios that were adjusted for confounding variables according to categories of effect modifiers. The corresponding 95% Confidence Interval was estimated using the Delta Method (Oliveira et al, 1997). Modeling procedures started with a saturated model containing all potential confounders and effect modifier variables with their respective product terms. Effect modifiers were retained as variables in the final model if the Maximum Likelihood Ratio test yielded a p value ≤ 0.20 (Hosmer & Lemeshow, 1989; Rothman & Greenland, 1998). The presence of potential confounders was associated with variables that changed the point estimate or confidence intervals by more than 20% when dropped from the saturated model. Prior to modeling procedures, collinearity was assessed between the main independent variable and covariates. Linearity of the logit for the main association was assured through covariate coding procedures. Regression assumptions and the presence of influential observations were checked and the fitness of the final model was assessed by deviance analysis using the standard tests of SAS 6.12 software.

Potential effect modifiers are socioeconomic and work-related variables, namely, monthly family income, job satisfaction and position in the family. Potential confounders were identified based on previous research findings and by empirically examining whether they were associated with participation in leisure activities among women with low QMPA-SAD scores and among women with high QMPA-SAD scores who did not participate in leisure activities.

Results

A prevalence of 14.3% of high QMPA-SAD scores was estimated. The number of days off reported by subjects varied from zero to eight in the past month. No statistically significant differences were found on the prevalence of high QMPA-SAD scores with respect to the number of days off in the past month. Among women reporting no days off, the prevalence of high QMPA-SAD scores was 14.3%, which increased to 15.4% in the group reporting one to four days off, and decreased to 14.4% among those with the largest number of days off (over 4 days in the last month).

Participation in leisure activities, defined by reports of engaging in leisure activities during the days off in the past month, was mentioned by 44.2% of the women (Table 1). The women who participated in leisure activities were younger, had better education and higher per capita family income than those who did not engage in leisure activities. They were also more likely to be unmarried, to not be the head of the family, to have no children at home and to have less hours of daily work-time than their counterparts. All these differences were statistically significant ($p < 0.05$). No statistically significant differences were found for having paid work, job satisfaction, the intention of changing jobs or of sharing housework duties (Table 1).

The majority of women (46.8%) did not report engagement in leisure activities, while 44.2% reported having been involved in some leisure activi-

TABLE 1
Characteristics of the Study Population According to Participation in Leisure Activities During the Past Month

Variables	Participation in Leisure Activities			
	Yes (N = 244)		No (N = 308)	
	N ¹	%	N	%
Less than 28 years of age*	149	61.1	126	40.9
More than elementary school*	124	50.8	106	34.4
Unmarried*	118	48.4	89	28.9
No preschool age children at home**	131	53.7	140	45.5
Per capita family income/month more than US\$299.00*	139	56.9	140	45.5
Not head of the family ² *	102	41.8	75	24.4
Have paid work	150	60.8	174	55.8
Total work time less than 8 h/day*	141	57.8	124	40.3
Have job satisfaction	183	75.0	238	77.3
Have no intention to change jobs	86	35.3	129	41.9
Housework sharing ³	86	35.3	116	37.7

1 = number of subjects;

2 = The woman is not the principal economic provider or breadwinner;

3 = Another woman from the same household helps in housework duties;

p*-Value < 0.001; *p*-Value < 0.05.

ties during the past month (Table 2). Participation in only one kind of leisure activity prevailed (23,5%), while 16.1% of women were involved in more than one. Among women involved in only one leisure activity, 7.6% reported staying at home, 7.6% going to the beach, 4.9% socializing, 2.0% undertaking some leisure trips, and 1.4 % going to church. Simultaneous engagement in leisure activities and work accounted for 4.5% of women who mentioned participation in leisure activities (Table 2).

From Table 3 we see that most of the estimated prevalence of anxiety and depression symptoms, namely, lack of appetite, sleep disturbances, poor concentration, headache, weakness, aggressive behavior, *globus hystericus*, irritation crisis, crying spells, suicidal ideas, inability to work due to nervousness, isolation, chest tightness and irritability, are higher among women who did not participate in leisure activities than in those who did. Interestingly, trembling is more common among women engaged in some leisure activities. Prevalence differences are only statistically significant for sleep disturbance.

According to logistic regression coefficients, family income ($\chi^2_{1 \text{ degree of freedom}} = 2.976$; *p* < 0.01) and job satisfaction ($\chi^2_{1 \text{ degree of freedom}} = 1.810$; *p* < 0.02) were effect modifiers for the association between participation in leisure activities and high QMPA-SAD scores (Table 4). No confounding variables were identified. Table 4 shows how effect modifier varia-

TABLE 2
Leisure Activities Performed During Days Off in the Past Month

Participation in Leisure Activities	N = 552	(%)
Leisure activities	244	44.2
Stay at home	42	7.6
Going to the beach	42	7.6
Socializing ¹	27	4.9
Leisure trips	11	2.0
Going to church	8	1.4
More than one of the above	89	16.1
Working and practicing some leisure activities	25	4.5
Do not participate in leisure activities	292	55.8

N—number of subjects

1—Socializing—going to parties, gathering with friends, visiting friends or relatives.

TABLE 3
Prevalence of Symptoms on the QMPA-SAD Scale According to Participation in Leisure Activities

Variables	Participation in Leisure Activities			
	Yes (N = 244)		No (N = 308)	
	N	%	N	%
Lack of appetite	28	11.0	54	16.1
Sleep disturbance	33	13.0	64	19.1*
Poor concentration	28	11.0	44	13.1
Headache	37	14.6	58	17.3
Weakness	44	17.3	67	19.9
Aggressive behavior	55	21.7	86	25.6
Sadness/tiredness	41	16.1	54	16.1
<i>Globus hystericus</i>	38	15.0	58	17.3
Trembling	30	11.8	25	7.4
Irritation crises	24	9.5	46	13.7
Crying spells	21	8.3	35	10.4
Suicidal ideas	27	10.6	48	14.3
Inability to work due to nervousness	6	2.4	15	4.5
Isolation	7	2.8	16	4.8
Chest tightness	53	20.9	76	22.6
Irritability	31	12.2	49	14.6

N—number of subjects

*p-Value < 0.05

TABLE 4
Prevalence Ratio for the Association between Participation in Leisure Activities and High QMPA-SAD Scores, According to Per Capita Family Income/Month and Job Satisfaction

Job Satisfaction	Per Capita Family Income/Month						
	N	≤ US\$ 299.00			> US\$ 299.00		
		PR	95% CI		N	PR	95% CI
No	68	0.27	(0.09 to 0.88)	63	1.32	(0.45 to 3.88)	
Yes	205	0.93	(0.46 to 1.90)	216	1.42	(0.63 to 3.18)	

N = number of subjects;

PR = Prevalence Ratio;

CI—Confidence Interval based on the Delta Method.

bles changed the association between leisure and mental health. For women with job satisfaction and high family income, no statistically significant association was found between participation in leisure activities and high QMPA-SAD scores PR = 1.42 95% CI (0.63 to 3.18). In addition, among women with job satisfaction or high per capita family income, there is no evidence that participation in leisure activities was associated with low QMPA scores. A non-statistically significant association was found between participation in leisure activities and low QMPA scores (PR = 1.32, 95%; CI: 0.45 to 3.88) and low per capita family income and job satisfaction (PR = 0.93 95%; CI: 0.46 to 1.90). Participation in leisure activities was negatively associated with high QMPA-SAD scores only among women with low family income (below US\$ 299.00) and lack of job satisfaction (PR = 0.27; 95% CI: 0.09 to 0.88).

Discussion

The results of this study suggest that participation in leisure activities is negatively associated with symptoms of anxiety/depression among women reporting no job satisfaction and low family income. But leisure is apparently not a predictor of low anxiety or depression scores among women reporting job satisfaction or a relatively high family income. These findings are consistent with studies that demonstrate a correlation between participation in leisure activities and stress reduction (Coleman, 1993; Caltabiano, 1995; Iso-Ahola and Park, 1996), and, more specifically with studies that indicate that participation in leisure activities provides mental health benefits only to individuals experiencing high levels of stress (Reich and Zautra, 1981).

Events occurring in different domains of human activity (home, work and leisure) do not influence psychological symptoms and mental health in isolation. Instead, it is possible that the benefits of leisure in one psycholog-

ical domain can compensate for the negative effects of other domains (Fletcher, 1991). In the current study, participation in leisure activities appears to help compensate for the adverse effects of poor living conditions, as represented by low income and no job satisfaction. These findings show that despite the limited participation in leisure activities among the poor, leisure may be of particular importance for coping with adverse life conditions, which are widely recognized for their association to mental disorders (Santana et al., 1999).

Notwithstanding the apparent benefits of leisure for mental health, it is worth noting that there were only a limited number of women involved in leisure activities in the study population. Only 44.2% of the women interviewed reported participating in leisure activities during the past month, which seems to be largely dependent on socioeconomic status. For instance, women who participate in leisure activities are more likely to have better family incomes and educational levels than those who do not. These findings are consistent with studies documenting how material support is an important requirement for attaining leisure (Dattilo et al, 1994; Cox, 1980).

Another important issue is the fact that family income (which is less than US\$ 299.00 for half of the study population) is insufficient for the satisfaction of basic human needs. Hence, workers and their families are often pressured into using their "free time" for doing other paid activities, such as selling food on weekends or engaging in communal work, like the construction of homes by volunteer groups (*mutirão*), which is common in this community and helps ensure its survival (Santana, 1993). In sum, low participation in leisure activities appears to be another facet of poverty itself: leisure time is utilized as work time, as another working class strategy for survival, in consonance with the way poverty—and wealth—is generated in Third World countries, i.e. by reducing the cost of labor to an absolute minimum.

Women who participated in leisure activities were less likely to be in charge of household chores. For example, women who participated in leisure activities were more likely to be unmarried, to not be the family breadwinner and to have no preschool age children at home. Increased pressures from additional family responsibilities may reduce free time. An increased prevalence of high psychological symptoms scores among women was previously reported in association with being the principal wage earner (Santana, 1993). A woman who is the principal breadwinner in her family is thus more likely to have household chores on top of her paid work, which can lead to psychological suffering and a reduction of participation in leisure activities.

The prevalence of anxiety/depression symptoms was lower among women engaged in some leisure activities, except for trembling, which was higher. One possible explanation for this is the traditional consumption, since the beginning of colonization, of alcoholic beverages during leisure time among the poor (Freyre, 1989).

Poor working conditions, i.e. low income and the absence of a formal job contract, of legislated labor protection and of social benefits like paid

retirement, are widely reported as being mental health risk factors in studies of similar populations (Coutinho, 1976; Almeida-Filho, 1987; Aguiar, 1988, Santana, 1993). However, the present study indicates that participation in leisure activities may serve as a potential survival strategy by contributing to better mental health, even under adverse conditions, such as poverty and low job satisfaction. These findings highlight the need for discussion in the fields of community health and health planning, since the identification of local strategies for dealing with mental health problems is essential for the implementation of culturally appropriate actions for improving community well being.

Further studies, however, ought to identify precisely which aspects of leisure are the most important for improving mental health among the poor in Salvador and similar cities. Coleman (1993) points out that freedom is the most important stress buffering aspect of leisure activity. Iso-Ahola & Park (1996) found that socialization in leisure is the most important mediator between stress and mental health. These two studies were conducted in distinct socio-cultural scenes, the first in Australia and the second in the United States, which may very well indicate that the kind of leisure activity that improves mental health may differ according to the specific locality and context. From this perspective, it is important to note that the recognition of cultural differences is crucial in implementing effective social policies for community well being.

This study overcomes some of the drawbacks of previous studies. For example, the study population is a random community-based sample, which permits the examination of relationships between leisure and socio-economic variables among people with distinct occupations, including jobs in the informal sector of the economy and unpaid work. Besides socio-economic status, the participation in leisure activities was identified as a relevant protective factor against a large number of anxiety/depression symptoms, especially among the poor. Moreover, psychological symptoms were assessed using a validated questionnaire, commonly used in community-based surveys of poor Brazilian populations.

This research has certain methodological limitations that should be addressed in future studies. In cross-sectional studies like this, participation in leisure activities and psychological symptoms are assessed simultaneously. It is not therefore possible to establish a cause and effect link between leisure activities and mental health. The causal relationship suggested by the results should therefore be viewed with caution. Women with less psychological symptoms may have greater motivation for participating in leisure activities than those with more symptoms, which can inhibit volitional activity.

Furthermore, the participation of women in leisure activities may have been underestimated because the measure of this variable was limited to days off. For instance, vacation time and the interval between work shifts, which could be used for leisure purposes, were not registered. Exposure misclassification could have occurred because of possible simultaneous engagement in leisure and work, particularly when leisure activities are performed at

home where household chores and childcare can represent extra work. Also, the reported time spent at church might include volunteer work. As the reasons for differential classification errors are not expected, it is reasonable to assume only a smaller impact in the measures of association.

References

- Aguiar, W. M. (1988). Condições de trabalho feminino e transtornos mentais: um estudo de prevalência. *Master's paper, School of Medicine, Federal University of Bahia Brazil.*
- Almeida Filho, N. (1987). Migration and mental health in Bahia, Brazil. *Confederação de Cajas de Ahorros, No. 936, Publ. no. 51.*
- Almeida Filho N. (1987). Social Epidemiology of Mental Disorders: A Review of Latin American Studies. *Acta Psychiatrica Scandinavica, 75, 1-10.*
- Almeida-Filho, N., Mari, J. J., Coutinho, E., Franca, J. F., Fernandes, J., Andreoli, S. B. & Busnelo, E. D. (1997). Brazilian multi-centric study of psychiatric morbidity—methodological features and prevalence estimates. *British Journal of Psychiatry, 171, 524-9.*
- Andreoli S. B., Mari J. J., Blay S. L., Almeida-Filho N. M., Coutinho E., Franca J., Fernandes G. & Busnelo E. D'A. (1994). Estrutura fatorial do Questionário de Morbidade Psiquiátrica de Adultos aplicado em amostras populacionais de cidades brasileiras. *Revista de Saúde Pública, 28, 249-60.*
- Bevil, C. A., O'Connor, P. C. & Mattoni, P. M. (1993). Leisure activity, life satisfaction, and perceived health status in older adults. *Gerontology and Geriatrics Education, 14, 3-19.*
- Caltabiano, M. L. (1995). Main and stress-moderating health benefits of leisure. *Loisir et Société/Society and Leisure, 18, 33-52.*
- Coleman, D. (1993). Leisure based social support, leisure dispositions and health. *Journal of Leisure Research, 25, 350-61.*
- BAHIA (1984). Sumário de Informações 3. Governo do Estado da Bahia. Salvador: DIPLAN/CSM, 192pp.
- Coutinho, D. (1976). Prevalência de doenças mentais em uma comunidade marginal: um estudo do Maciel. *Master's paper, School of Medicine, Federal University of Bahia Brazil.*
- Csikszentmihalyi, M. & Le Fever, J. (1989). Optimal experience in work and leisure, *Journal of Personality and Social Psychology, 56, 815-22.*
- Cox, T. (1980). Repetitive Work. In: Cooper, C. L. & Payne, R. *Current Concerns in Occupational Stress*, (pp. 23-41). John Wiley & Sons Ltd.
- Dattilo, J., Dattilo, A. M., Samdhal, D. M. & Kleiber, D. A. (1994). Leisure orientations and self-esteem in women with low incomes who are overweight. *Journal of Leisure Research, 26, 23-38.*
- Desjarlais, R., Eisenberg, L., Good, B. & Kleinman, A. (1995). *World mental health: problems and priorities in low income countries.* Oxford: Oxford University Press.
- Dohrenwend B. P., Levav I., Shrout P. E., Schwartz S., Naveh G., Link B. G., Skodol A. E. & Saeve A. (1992). Socioeconomic status and psychiatric disorders: the causation-selection issue. *Science, 21, 946-52.*
- Fletcher, B. (1991). Models of stress disease. In: ———, *Work, stress, disease and life expectancy.* New York: John Wiley & Sons.
- Freyre, G. (1989). *Nordeste.* Rio de Janeiro: Edt. Record.
- Hersch, G. (1990) Leisure and aging. *Physical & Occupational Therapy in Geriatrics, 9, 55-78.*
- Hosmer D. W. & Lememshow, S. (1989). *Applied logistic regression.* New York: John Wiley & Sons.
- Hull, R. B. (1990). Mood as a product of leisure: causes and consequences. *Journal of Leisure Research, 22, 99-111.*

- Iso-Ahola, S. E. (1994). Leisure lifestyle and health. In: D. Campton & S. Iso-Ahola (Eds.), *Leisure and mental health* (pp. 42-60), Park city, Utah: Family Development Resources.
- Iso-Ahola, S. E. (1997). A psychological analysis of leisure and health. In: Haworth, J. T. *Work, leisure and well being* (pp. 131-144), London and New Yourk: Routledge.
- Iso-Ahola, S. E., & Park, C. J. (1996). Leisure-related social support and self-determination as buffers of stress-illness relationship. *Journal of Leisure Research*, 28, 169-87.
- Iunes, R. F. 1995. Mudanças no cenário econômico. In: Monteiro, C. A. *Velhos e novos males da saúde no Brasil: a evolução do país e suas doenças* (pp. 45-51), São Paulo: Ed. HUCITEC.
- Jacomb P. A. (1999) Emotional response of participants to a mental health survey. *Social Psychiatry and Psychiatric Epidemiology*, 34, 80-4.
- Jeffres, L. W. & Dobs, J. (1993). Perceptions of leisure opportunities and the quality of life in a metropolitan area. *Journal of Leisure Research*, 25, 203-17.
- Lehman, A. F. (1995). Schizophrenia: psychosocial treatment. In: Kaplan, H. I. & Sadock, B. J. *Comprehensive Textbook of Psychiatry*. New York: Williams & Wilkins (CD - ROM).
- Mannell, R. (1980). Social psychological techniques and strategies for studying leisure experiences. In: S. Iso-Ahola (ed.), *Social Psychological Perspectives on Leisure and Recreation* (pp. 62-83), Springfield, IL: Charles C. Thomas.
- Mattila, V. J., Joukamaa, M. I. & Salokangas, R. K. R. (1989). Retirement, aging, Psychosocial adaptation and mental health. *Acta Psychiatrica Scandinavica*, 80, 356-67.
- Oliveira, N. F.; Santana, V. S.; Lopes, A. A. (1997) Razão de Proporções e Intervalos de Confiança pelo Método Delta através de parâmetros da regressão logística. *Revista de Saúde Pública* 31: 90-99.
- Patterson, I. & Carpenter, G. (1994). Participation in leisure activities after the death of a spouse. *Leisure Sciences*, 16, 105-117.
- Pratt, L. (1991) The social support functions of the family. In: B. Badura & I. Kickbusch (Eds.) *Health promotion research: towards a new social epidemiology* (pp. 229-249), Copenhagen: WHO publications.
- Ragheb, M. G. & Mckinney, J. (1993). Campus recreation and perceived academic stress. *Journal of College Student Development*, 34, 5-10.
- Reich, J. W. & Zautra, A. (1981) Life events and personal causation: some relationships with satisfaction and distress. *Journal of personality and social psychology*, 41, 1002-1012.
- Santana V. S. (1978) Estudo de morbidade mental em uma área pobre de Salvador, Bahia: o estudo do Nordeste de Amaralina. *Master's paper, School of Medicine, Federal University of Bahia Brazil*.
- Santana, V. S. (1982). Estudo epidemiológico das doenças mentais em um bairro de Salvador—Nordeste de Amaralina, Salvador-Bahia, Brasil. *Série de Estudos em Saúde, Bahia: Secretaria de Saúde do Estado da Bahia*.
- Santana, V. S. (1993) Informal work, housework and minor psychological disorders among women in urban Brazil. *Doctoral dissertation [University of North Carolina at Chapel Hill]*.
- Santana V. S., Loomis D., Newman B. & Harlow S. (1997) Informal jobs: another occupational hazard for women's mental health? *International Journal of Epidemiology*, 26, 1236-1242.
- Santana V. S., Matos A., Carvalho F. & Ferreira L. (1997) Sintomas psicológicos e trabalho na indústria petroquímica entre residentes de Camaçari, Bahia. *Jornal Brasileiro de Psiquiatria*, 46, 535-541.
- Santana, V. S. & Almeida filho, N. (1994) Emprego doméstico e o sofrimento psíquico. *Saúde Mental em Revista*, 2, 8-12.
- Santana, V. S. & Almeida-Filho, N. M. (1994). Emprego doméstico e sofrimento mental. *Saúde Mental em Revista*, 2:8-12.
- Santana, V. S., Loomis D. & Newman, B. (1999). Paid and unpaid work: women's work overburden and mental health. *Revista de Saúde Pública*, (in press).

- Sigafoos, J. & Kerr, R. M. (1994). Provision of leisure activities for the reduction of challenging behavior. *Behavioral-Interventions*, 9, 43-53.
- Stone, A. A. (1987). Event content in a daily survey is differentially associated with concurrent mood. *Journal of Personality and Social Psychology*, 52, 56-8.
- Varon, S. R. & Riley, J. (1999) Relationship between maternal church attendance and adolescent mental health and social functioning. *Psychiatric Services*, 50, 799-805.
- Wearing, B. (1989). Leisure, unpaid labour, lifestyles and the mental and general health of suburban mothers in Sydney, Australia. *Australian Journal of Sex, Marriage and Family*, 10, 118-132.
- Wheeler, R. J. & Frank, M. A. (1988). Identification of stress buffers. *Behavioral Medicine*, 14, 78-89.

Appendix 1

Questionário de Morbidade psiquiátrica de Adultos—Versão II (1982)—QMPA

O senhor (a senhora) ou alguém (adulto) da sua família residente no domicílio.

- QMPA1 = Sofre de falta de apetite?
- QMPA2 = Tem dificuldade de dormir?
- QMPA3 = Se queixa de zumbido nos ouvidos, agonia na cabeça?
- QMPA4 = Sente dores ou pontadas frequentes na cabeça ?
- QMPA5 = Sente fraqueza nas pernas, dores nos nervos?
- QMPA 6 = Fica agressivo, explode com facilidade?
- QMPA 7 = Fica períodos triste, com desanimo?
- QMPA 8 = Sente um bolo na garganta, queimor ou empaimento?
- QMPA 9 = Sente tremores ou frieza nas mãos?
- QMPA 10 = Tem com frequência crises de irritação?
- QMPA 11 = Tem dificuldade de aprender, lembrar ou entender as coisas?
- QMPA 12 = Bebe exageradamente?
- QMPA 13 = Às vezes fica parado, chorando muito?
- QMPA 14 = Já pensou em dar fim à vida?
- QMPA 15 = Já esteve descontrolado, fora de si, como se fosse doente da cabeça?
- QMPA 16 = Não consegue trabalhar por nervosismo ou doença mental?
- QMPA 17 = Já ficou sem poder falar ou enxergar?
- QMPA 18 = Fica fechado no quarto sem querer ver ninguém?
- QMPA 19 = Se embriaga pelo menos uma vez por semana?
- QMPA 20 = Bebe diariamente?
- QMPA 21 = Se queixa de “baticum” ou aperto no peito?
- QMPA 22 = Sofre de nervosismo ou está sempre intranquilo?
- QMPA 23 = Se preocupa muito com doenças, se queixa sempre?

- QMPA 24 = Já sofreu algum ataque depois de um susto ou contrariedade?
- QMPA 25 = Tem medo excessivo de certas coisas, ou de alguns bichos, ou de lugares fechados, ou de escuro?
- QMPA 26 = Tem mania de limpeza ou de arrumação?
- QMPA 27 = Antes de sair ou dormir verifica sempre se as portas estão bem fechadas?...exageradamente?
- QMPA 28 = Se queixa de ouvir vozes ou vê coisas que os outros não vêem?
- QMPA 29 = Fala coisas sem sentido, bobagens?
- QMPA 30 = Fala ou ri sozinho?
- QMPA 31 = Se acha perseguido, que estão querendo lhe fazer mal?
- QMPA 32 = Sente que está sendo controlado por telepatia, por rádio ou espíritos?
- QMPA 33 = Às vezes fica muito tempo numa posição estranha?
- QMPA 34 = Fica períodos exageradamente alegre sem saber porquê?
- QMPA 35 = Fica andando muito, cantando ou falando sem parar?
- QMPA 36 = Já utilizou ou usa atualmente algum remédio para dormir ou acalmar os nervos? Qual?
- QMPA 37 = Não consegue frequentar escola?
- QMPA 38 = Sofre de acessos de loucura?
- QMPA 39 = Sofre de retardamento mental?
- QMPA 40 = Recebe tratamento para nervosismo ou doença mental?
- QMPA 41 = Sofre de ataques, caindo no chão, se batendo?
- QMPA 42 = É dado ao uso de drogas?
- Alguém de sua família
- QMPA 43 = Não sabe se vestir, urina e obra nas roupas?
- QMPA 44 = Não fala, não caminha, não reconhece as pessoas?

Appendix 2

QMPA-SAD

- QMPA1 = Sofre de falta de apetite?
- QMPA2 = Tem dificuldade de dormir?
- QMPA3 = Se queixa de zumbido nos ouvidos, agonia na cabeça?
- QMPA4 = Sente dores ou pontadas frequentes na cabeça ?
- QMPA5 = Sente fraqueza nas pernas, dores nos nervos?
- QMPA 6 = Fica agressivo, explode com facilidade?
- QMPA 7 = Fica períodos triste, com desânimo?
- QMPA 8 = Sente um bolo na garganta, queimor ou empacamento?
- QMPA 9 = Sente tremores ou frieza nas mãos?

- QMPA 10 = Tem com frequência crises de irritação?
QMPA 13 = Às vezes fica parado, chorando muito?
QMPA 14 = Já pensou em dar fim à vida?
QMPA 16 = Não consegue trabalhar por nervosismo ou doença mental?
QMPA 18 = Fica fechado no quarto sem querer ver ninguém?
QMPA 21 = Se queixa de “baticum” ou aperto no peito?
QMPA 22 = Sofre de nervosismo ou está sempre intranquilo?