Maternal neurotic symptoms and infants' risk of developing persistent diarrhoea*

Sintomas neuróticos maternos e risco no desenvolvimento de diarréia persistente em crianças

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Abstract

A previously calculated predictive model for health risk selects infants who suffer 4-5 times more morbidity than their unselected peers. Preliminary results suggested that this risk is related to maternal neurotic symptomatology. To evaluate this hypothesis, 52 consecutive mothers whose infants had a positive predictive score (Group 1) and 52 in whom this was negative (Group 2) were evaluated by means of Goldberg's General Health Questionnaire (GHQ - 30). A total of 41.9% and 20.5% of the mothers in Groups 1 and 2, respectively, scored above 11 points in GHQ-30, established as the cut off point. It is concluded that among poor urban families in Santiago mothers of infants with high risk of persistent diarrhoea have increased frequency of detectable neurotic symptoms. New programs aimed at this type of infant should include psychological support for their mothers.

Mothers, psychology. Mental health. Diarrhea, infantile. Risk.

Resumo

Um modelo preditivo previamente calculado para o risco de saúde selecionou crianças que sofriam de 4 a 5 vezes mais de doenças do que seus pares não selecionados. Resultados preliminares sugeriram que esse risco referia-se a sintomas neuróticos maternos. Para avaliar esta hipótese, 52 mães, cuja criança tinha um escore preditivo positivo (grupo 1) e 52 nas quais este escore era negativo (grupo 2), foram avaliados por meio do Questionário de Saúde Geral de Goldberg (GHQ-30). Um total de 41,9% e 20,5% das mães do grupo 1 e 2, respectivamente, tiveram escores acima de 11 pontos no GHQ-30, o qual ficou estabelecido como o ponto de corte. Conclui-se que entre famílias pobres da cidade de Santiago, mães de crianças com alto risco de diarréia persistente tiveram freqüência aumentada de sistemas neuróticos deficitários. Novos programas visando esse tipo de crianças deveriam incluir apoio psicológico para suas mães.

Mães, psicologia. Saúde mental. Diarréia infantil. Risco

INTRODUCTION

Goldberg's General Health Questionnaire (GHQ) is a semi-structured psychiatric screening interview designed for the detection of emotional disorders in community surveys. Its original version with 60 questions explored somatic, depressive anxiety and sleeping disorders and social disabilities (Goldberg[13], 1972). Shortened versions including 32, 30, 28 and 12 questions have also been developed (Goldberg, et al.[14], 1976). These have performed satisfactorily in a variety of cultural settings (Muñoz et al.[21], 1979; Campillo-Serrano et al.[8], 1980; Medina-Mora et al.[20], 1985; Mari et al.[19], 1987; Sen et al.[22], 1987); their application at the community level is easy since a short form that may be self-administered or completed by an interviewer is used. The Questionnaire detects individuals who have potential psychiatric disorders, but it does not provide bases for a firm diagnosis and it is unable to detect disorders such as organic brain syndrome or schyzophrenia (Goldberg[13], 1972). In Chile, the 30 (GHQ-30) and the 12 question versions have been validated in the Spanish language (Trucco, et al.[24], 1979; Araya et al.[5], 1992).

The GHQ-30 to was chosen to evaluate the mothers of children under two years of age who were defined as being at high risk of developing persistent diarrhoea according to a previously calculated predictive model. Studies of families of the low socio-economic stratum carried out during the last decade revealed that diarrhoeal episodes were not homogeneously distributed among the children, but that some of them suffered significantly more episodes than the average (Araya et al.[2], 1985). In an effort to identify this subgroup logistic regression (logit program) was used to calculate a predictive model. This detected infants who had 4 to 5 times more diarrhoeal episodes than their unselected peers (Araya et al.[3], 1991). Calculated on the basis of its regression coefficient, the presence of each variable in the model assigns points for a total score. The same logit programme established a cut off point by which children who score 20 or more are considered "positive", i.e. they are at risk (Araya et al.[3], 1991). The model has been used repeatedly during the last 6 years and it has picked out children who suffer the expected higher incidence of diarrhoeal episodes. The predictive capacity of the model has been validated again recently (Araya et al.[4], 1994). The analysis of the variables which may explain the risk of these children strongly suggested that this is related to maternal behaviour. These mothers had disfunctional relations with their children and other family members and they exhibited neurotic symptomatology (Zegers et al.[25], 1991; Humphreys et al.[17], 1992). Since poverty and nutritional problems influence mental health (Mari et al.[19], 1987) and our surveys were carried out in poor families in periurban Santiago, this study was undertaken to determine whether the state of mental health of mothers of children defined as being at risk by the predictive model differs from that of mothers whose infants are negative for the predictor.

MATERIAL AND METHOD

This study was part of a survey of high risk infants who lived in La Faena, an area with approximately 110,000 inhabitants, which presents the poorest socio-economic indicators and the highest infant mortality rate in Eastern Metropolitan Santiago (Instituto Nacional de Estadísticas[18], 1990). Charts of all infants registered at La Faena Health Center were reviewed. In this area all newborns are enrolled at the Center at about 15 days of age, although no more than 60 to 80% subsequently participate in its programmes; thus, by using the enrollment lists, the universe of candidates for the research project was defined as the actual number of infants that lived in the area.

Of the 843 families who had a child under one year of age 438 were contacted at home and answered the predictive form. The remainder had either moved, had given an incorrect address, had a child whose birthweight was below 2,500 grams, had suffered a chronic illness that could interfere with growth or attended a day-care center and was not available for follow up. Information from the charts kept at the health center showed that the demographic and socio-economic characteristics of those families who were included in the protocol and those who were not did not differ. In 52 children (12%) the predictive form was positive; they were weaned and well nourished or suffered mild degrees of malnutrition. Their mothers answered questionnaires for socio-economic evaluation (Alvarez et al.[1], 1982) and were willing to go to our Field Station for medical check ups of their infants and to be interviewed for the GHQ-30. These mothers formed Group1. Those whose children scored less than 20 points in the predictive form were paired by maternal age, child's age and number of live children in the family, and were selected for comparison (Group 2, n = 52). All of them were invited for individual 30 minute interviews in which a resident in psychiatry trained in the use of the GHQ-30 applied it. Cut off point was defined as a score of 12 points or more according to the validation studies carried out by Trucco, et al.[24] (1979). The protocol was approved by the Committee of Ethics, INTA, University of Chile.

Data were recorded in precodified forms and analyzed by means of the SAS package (SAS Institute, Cary, North Carolina, USA) for mean, standard deviation, Student's t test and chi square.

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RESULTS

All interviews were carried out within a three month period; 43 and 39 respectively, of the 52 mothers assigned to Groups 1 and 2 kept one of the up to ten appointments made at home. During this period weekly visits were carried out and mothers were encouraged to participate several times in the assessment. As in previous studies, they appeared willingly to accept the invitation, but later did not keep their appointments (unpublished results).

Table - Demographic characteristics of mothers of high risk (Group 1) and unselected (Group 2) infants.

Variable	Group 1 n = 43	Group 2 n = 39
Mean age (years)	25.1	27.2
Mean years at school	9.6	9.7
Marital status:		
single (%)	13.6	12.8
married (%)	75.0	71.8
cohabitation (%)	9.1	15.4
divorced (%)	2.3	0.0

All families belonged to the lowest socio-economic stratum. Maternal age, schooling and marital status are shown in the Table. Twenty-five (58%) and 31 (79%) respectively, of the mothers were above the cut off point in Groups I and II. Mean scores were 10.3 and 7.4, respectively, $p < 0.005$ (Student's t test for independent samples) (ranges 1 - 26 and 0 - 19) in the same groups. Distribution of the highest score frequencies was bimodal, with peaks at 1-2 points (18.6%) and 11-15 points (11.6%). In both groups the questions with the highest positivity rates were related to anxiety; the lowest referred to sleep disorders and somatic anxiety symptoms in Group 1, and to suicidal thoughts and feelings of helplessness in Group 2.

DISCUSSION

Mothers of children at risk were positive in the GQH-30 nearly twice as often as those in the unselected group, which in turn, showed a positivity rate similar to others described in low socio-economic populations (Goldberg[14], 1976). This supports our preliminary findings that neurotic behaviour on the part of the mothers was frequently present in families whose infants showed higher incidence of persistent diarrhoea (Zegers et al.[25], 1991; Humphreys et al.[17], 1992); it also supports the hypothesis that in the Chilean setting of urban poverty, maternal characteristics have a closer association with the health risk than other factors such as breast feeding or malnutrition. Since all families studied belonged to the low socio-economic stratum and had similar demographic and housing characteristics (data not shown) the differences observed cannot be explained by these variables.

Cut off points for the definition of cases have been widely discussed in the literature. In a study in four developing countries Harding et al.[15] (1980), using GHQ-30, observed considerable variations in the optimal cut off point, which ranged from 5/6 to 10/11. The level 11/12 used in this study was chosen in agreement with the study by Trucco et al.[24] (1979) in Chile. Higher cut off scores have been proposed on the basis of the higher emotional expressiveness of Latin populations (Dohrenwend & Dohrenwend[11], 1982). The fact that in studies characterizing sex differences, higher cutting points had better discriminating capacity among women (Tarnopolsky et al.[23], 1979) was also taken into account. In this respect, there is controversy as to whether there are differences between women and men (Bash & Bash-Liechti[6], 1974; Bebbington et al.[7], 1981); these differences may be better explained by social factors (Dekker & Webb[9], 1974). In most societies, due to the roles that women play, they tend to experience more life events, chronic social stresses and receive less social support than men; this greater exposure to risk factors may explain their increased vulnerability to neurotic disorders (Dekker & Webb[9], 1974; Dohrenwend & Dohrenwend[10], 1974). This may well be the case in Chilean society. In addition, young couples who settle in poor periurban Santiago are often the second generation living under urban conditions and receive little parental support.

The mean score among non cases is high in comparison with Golberg's original results. He described a mean score of 10.4 for cases and 2.5 for non cases while we found 10.3 and 7.4, respectively. Global prevalence of mental disorders in Mexican studies using clinical instruments was 34% in a population of between 18 and 64 year of age, of these 38% were females; among females of reproductive age this was 50.6% to 70.1% (Gutierrez & Barilar[15], 1986). In other countries this figure has ranged between 10.6% in Sudan and 47/56% in Brazil (Medina-Mora et al[20], 1985; Mari et al.[19], 1987). Similar studies in the Chilean population have reported a global prevalence of neurotic disorders of 30% (Florenzano[12], 1980), with prevalence for all disorders (chronic and acute) close to 39%. These figures are comparable to those of the mothers of infants not selected for study by the .

We conclude that this study supports the hypothesis that, among poor urban families in Santi-

ago, mothers of infants with high risk of persistent diarrhoea have increased frequency of detectable neurotic symptoms. At present, in this country it is considered important to define new criteria to channel health resources to vulnerable groups. Most health programs consist of providing free milk and other foodstuffs and medical care to vulnerable children. They should also include psychological support for their mothers.

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