The Home Screening Questionnaire: A validation study[1]

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Abstract

The study analysed the usefulness of the Home Screening Questionnaire (HSQ) as an alternative to the Home Observation and Measurement of the Environment inventory (HOME). Both are measures of the home environment quality. Both measures significantly intercorrelated. It was concluded that the HSQ is an easy to administrate alternative to the HOME inventory.

Key words: home environment, quality assessment, family environment, HOME, HSQ

Introduction

This study is part of a research project, conducted at the Department of Psychology of Porto University (Portugal). In the project, the quality of interactions within family and day care settings, and the influence of interactions on children's cognitive development are examined.

The aim of this study is restricted to examining the effect of the quality of day care and home environments on children's cognitive, social, and language development. In this report, however, we shall only address questions involving the usefulness of the Home Screening Questionnaire (HSQ; Coons, Frankenburg et al., 1981) to assess the home environment quality. Our particular interest is to determine whether this measure can be used concurrently with or as an alternative to the Home Observation and Measurement of the Environment, HOME inventory or HOME for short (HOME; Caldwell & Bradley, 1984).
Even though our findings appear to indicate that the HOME inventory may be useful in the assessment of home environment quality, there are a few drawbacks to its use. For example, the interviewer must be trained in the test administration and the interview must be done in the home environment. Altogether the home visit takes longer than one hour. For this reason, it seemed necessary to explore the possibilities of an alternative measure.

Method

Subjects

The sample consisted of 120 families living in the metropolitan area of Porto with children attending day care centers, of ages ranging from 12 to 36 months (mean of 25.4 months),

equally distributed by gender. Children were attending both profit and nonprofit day care centers.

Fifteen care centers were selected. The sample of children was drawn from day care center listings. Sampling procedure involved the random selection of two boys and two girls from two rooms in each center: the 12-24 months room and the 24-36 months room. Families were then contacted. Whenever a family failed to reply or to give consent to the child taking part in the study, a substitute child was randomly selected from the list. Out of the 170 families contacted, 120 were willing to participate in the study (response rate: 70.6%).

Adult participants were mostly mothers. Table 1 shows that mothers were, on average, thirty-one years of age and they had completed, on average, 11 years of school. Eighty two percent of the mothers were married and 89% were employed. The average of family's income was around 1,247 Euros.

Table 1
Sample characteristics

	N	%	M	SD	Range
Maternal characteristics					
Age (years)	120		30.89	5.29	18-43
Level of education (years)	120		10.83	4.47	0-18
Occupational status					
Employed	105	87.5			
Unemployed	8	6.7			
Student	4	3.3			
Housewife	2	1.7			
Retired	1	0.8			
Marital status					
Married	98	81.7			
Single, never married	16	13.3			
Divorced	6	4.9			
Family's income (in Euro)					
1250 or below	64	53.3			
Above 1250	56	46.7			

Measures

To assess the home environment quality both the Home Screening Questionnaire (HSQ; Coons, Frankenburg et al., 1981) and the Home Observation and Measurement of the Environment (HOME; Caldwell & Bradley, 1984) were used.

The Home Screening Questionnaire (HSQ), developed by Coons, Frankenburg et al. (1981), follows the HOME inventory as a guide for selecting, writing and scoring items. It includes items from the HOME inventory that measure important quantitative and qualitative variables. It can be used by professionals who are directly involved in helping young children from low social economic environments. It aims at screening features in children's home environment that are related to children's growth and development. The HSQ meets screening requirements. It is quick and easy to administer and accurate in identifying home environments likely to be suboptimal for the development of children.
The HSQ screens the quality of the home environment of children from birth to six years of age and aims at identifying, as early as possible, children who are "at risk" in terms of low development rate due to poor environmental influences. The scale includes features such as language-stimulating activities, organization and schedule, use of punishment and family activities. Its overall score reflects the quality of the home environment.
The HSQ is a parent-report consisting of multiple-choice, fill-in-the-blank, and yes/no questions. It also includes a toy checklist for parents to identify toys which are available in the home. The questionnaire was developed in two parts. Part one for children from birth to three years of age, and part two for children from three to six years of age.
Part one was used in our study. The questionnaire includes 30 questions and a toy checklist grouped under 11 items. Following the scoring guidelines a questions' subtotal score and a toy checklist's subtotal are obtained. The total score equals the sum of the two subtotals. The original scoring procedures were used. Taking into account the cultural specificity of our country, it was necessary to adapt some items. For instance, in the toys list, two items, the "wagon" and the "jungle gym" were eliminated.
According to the original questionnaire, a total score of 32 or below is a "suspect" screening result. A score of 33 or higher is a "nonsuspect" screening result. A home environment in the suspect range would likely have available few written materials and/or children's toys and adults would likely provide few stimulating activities for the child.

The Home Observation for Measurement of the Environment (HOME; Caldwell & Bradley, 1984) was designed to measure the quality of stimulation in a child's early family environment. Versions of the HOME have been developed for children of different ages. The Infant/Toddler 1984 version, which was used in this work, has been widely studied and used.

Procedures

The Home Screening Questionnaire was completed during the family visits. Interviews were conducted in homes or in day care centers and took about 15 to 20 minutes to complete.

The Home Observation for the Measurement of the Environment was completed during the home visit and took about 60 minutes.

Results

Results indicate that families included in this study had a total score in the HSQ varying between 13 and 50, with an average score of 31.9. Data variability was observed (SD = 6.52), pointing to a heterogeneous overall home environment quality.

Psychometric analyses showed that, in the present study, the HSQ scores had a classical test theory internal consistency reliability coefficient of 0.82 on alpha's Cronbach reliability index.

The scores of the total HOME scale in our study had an internal consistency reliability coefficient of 0.90 on alpha's Cronbach reliability index.

The Pearson correlation coefficient between the total HSQ score and the Home total score was positive and strongly significant, with $r = 0.89$ ($p < .01$).
Applying the original HSQ cut-off point, we found that 53.3% of families were in the "suspect" range with scores equal to or below thirty-two and 46.7% were in the "nonsuspect" range with scores equal to or higher than thirty-three.

There was no significant effect of the children's age nor of gender on the HSQ total score. Families of children in the age range between 12 and 24 months did not score statistically different from families of children in the age range between 24 and 36 months, $t(118) = -1.18$, $p = 0.241$. Families in the former group had an average total score of 31.2 ($SD = 6.4$), whereas families in the latter group had an average total score of 32.63 ($SD = 6.64$).

Moreover, Cohen's d coefficient showed that children's age had little effect on home environment quality ($d = 0.36$). Cohen's d coefficient is a magnitude-of-effect measure; 0.20 reflects a little effect, 0.50 a moderate effect, and 0.80 a large effect. Cohen's d coefficient is calculated on the basis of the two group means and standard deviations, is sensitive to low data variability, and is not influenced by sample size (McCartney & Rosenthal, 2000; Snyder, 2000).

Pearson r correlation coefficient,[2] showed a negligible association between HSQ total score and children's age ($r = 0.196$).

We also found that the effect of gender on home environment quality ($d = 0.31$) was small. Similarly, the scores of families of boys were not significantly different from those of families of girls, $t(118) = 1.64$, $p = 0.104$). In fact, boys' families had an average total score of 30.97 ($SD = 5.30$) and girls' families had an average score of 32.95 ($SD = 5.30$).

Further, type of day care center appeared to have a significant effect on home environment quality. We found that families whose children attended profit day care centers obtained an average total score of 34.75 ($SD = 5.16$), whereas those whose children attended nonprofit day care centers obtained an average total score of 30.91 ($SD = 5.16$). Cohen's d coefficient showed that the type of day care center ($d = 0.65$) had a moderate effect on home environment quality, although the difference between the two groups was found to be statistically significant, $t(118) = -2.947$, $p = 0.004$.

Mothers' marital and occupational status appeared to have a significant effect on HSQ total score. Married mothers had an average total score of 32.9 ($SD = 6.04$), whereas unmarried, divorced and single mothers had an average total score of 28.14 ($SD = 6.70$). Cohen's d coefficient showed a moderate effect due to mothers' marital status ($d = 0.75$), and the difference between the two groups was found to be statistically significant, $t(117) = 3.21$, $p = 0.002$. Employed mothers had an average total score of 32.5 ($SD = 6.43$), whereas unemployed, student or retired mothers had an average total score of 27.93 ($SD = 5.86$). Also, Cohen's d coefficient showed a moderate effect of mother's occupational status ($d = 0.74$) on HSQ total score, and the difference between the two groups was found to be statistically significant, $t(118) = 2.60$, $p = 0.01$.

Pearson r correlation coefficient showed a significant, moderate relationship between the HSQ total score, mother's education ($r = 0.62$), and family income ($r = 0.57$). No significant relationships were found with regard to mother's age ($r = 0.08$).

Discussion

The aim of this study was to explore the usefulness of the Home Screening Questionnaire to assess the home environment quality. The psychometric properties of the HSQ in this group of Portuguese families were similar to those of the original US sample. Internal consistency measures of HSQ total scores were comparable in the two groups. Moreover, we found a strong intercorrelation between the HSQ and the HOME inventory.

Results revealed that the home environment quality, measured by the HSQ, varied according to demographic characteristics, such as mother's educational level, marital status and occupational status. Furthermore, income had a significant influence on the home environment quality. The HSQ total score varied according to the type of day care centers children were attending. One possible explanation may be that children attending profit day care centers come from higher social economic family environments than children attending nonprofit day care centers. Although income may indeed be related directly to the type of day care center children are attending, it may not be related to the quality of these centers. In a previous study conducted by Aguiar, Bairrão and Barros (2002), day care quality seemed to vary according to day care type, but no statistically significant differences were found between profit and nonprofit day care centers.
In summary, the Home Screening Questionnaire showed to be a reliable measure of the home environment quality. The instrument can be used concurrently with or as an alternative to the Home Observation and Measurement of the Environment.

Notes

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2. Statistical significance of correlation coefficients is omitted throughout since the size of the coefficients determines the magnitude of the association (Thompson & Snyder, 1998).

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