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AUTHOR Hooshyar, Nahid T.
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ABSTRACT

The study examined the interaction between the developmental condition of nonhandicapped and handicapped children and the psychosocial climate of the home. Mothers of 34 nonhandicapped, 22 Down syndrome, and 18 language impaired children (mean ages 3.5 years) participated in a study which used the Family Environment Scale (FES) to evaluate the psychosocial climate of the home, the Vineland Adaptive Behavior Scale to assess developmental status of the child, and collected related demographic and background information. Among reported results was that neither handicapping condition nor sex of the child affected the personal growth dimension of the FES, a measure of the extent to which the family environment fosters high receptive communication skills and outside experiences for the child. However, handicapping condition did affect the autonomy/control dimension of the FES in that families with nonhandicapped children scored higher on this dimension. A positive score on the autonomy/control dimension indicates a home climate which fosters independence, openness, and expressiveness. Additional results are discussed in the context of the general conclusion that certain aspects of the home environment do seem influenced by the handicapping condition of the child, but that this influence is neither clearcut nor simple. (JW)

Home Environment of Handicapped Children

Nahid T. Hooshyar

School of Human Development
The University of Texas at Dallas

Address editorial correspondence to:

Nahid T. Hooshyar, Ph.D.
School of Human Development
The University of Texas at Dallas
P.O. Box 830688, MS GR4.1
Richardson, Texas 75083-0688

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Abstract

Seventy four mothers of nonhandicapped, Down's syndrome, and language-impaired children participated in this study. The Family Environment Scale (FES), Vineland Adaptive Behavior Scale, and a demographic inventory were utilized to assess the effects of mother's education, child's developmental status, handicapping conditions (where present), and sex on the home environment. Factor analyses of FES revealed three dimensions of the psychosocial climate of the home. Personal Growth, Autonomy/Control, and System-Maintenance. Further, results suggested that child's handicapping conditions and mother's education influenced the home environment dimensions differently.

Research on parent-child relations has a long history in child development literature. In a classic study of child-rearing, Sears, Maccoby, and Lewin (1957) alluded to constitutional differences among children that affected not only child but maternal behavior. Sears and his associates viewed the unidirectional parent-control model as a paradigm of convenience for studying the parent-child relationship. A striking shift beginning in the early 60's has changed our conceptualization of the parent-child relationship from a parent-control model to one focusing on the bidirectional effect of child and parent on each other. Bell's (1968) paper, in which he reexamined existing parent-child interaction research, suggested that most of the results interpreted as parental effects on children could be presented conversely (as child effect on parent).

Since Bell's (1968) paper, it has become increasingly obvious that the nature of the environment-development relationship is not unidirectional. Rather this relationship is bidirectional. More recently, Sameroff (1975, 1980), Sameroff and Chandler (1975) have proposed a transactional model to explain the environment developmental relationship. This model postulates a

continual and progressive interaction between the organism and its environment.

Nihira, Mink, and Meyer (1985) argued that the reciprocal influence of the child and home environment deserves special attention in studies of families with handicapped children. A handicapped child in a home may have various adverse effects on the family members and family cohesion. Among these are effects on the harmony between parents (Gath, 1977), role tension of siblings (Fowler, 1968), role organization crises in the home (Farber, 1960), and revision of community relations and psychological stress in parents (Cummings, 1976).

Such studies among others have suggested a complex pattern of interaction among home environment variables (e.g., socioeconomic status, organizational and social climate of the home) and the child's characteristics (e.g., sex, age, developmental status and handicapping conditions). In other words, home environment should not be imagined as a homogenous psychological variable which produces paramount consequences for behavior. To understand the reciprocity of the child and home environment one should look in detail at the child's character and at the environment in which the interaction takes place.

The present study originated with the belief that, in order to understand the reciprocal influence of the child and home environment, one must look not only at the overall influences of the environment, but also at details of interaction between children and their primary caregivers, and the environment in which this interaction occurs (Hooshyar, 1978). To accomplish this objective, it was deemed necessary to broaden the scope of this inquiry. In addition to detailed demographic background data and measurements on the child's developmental status, the study sought to obtain a detailed information about family organization and structure.

The primary objective of this investigation was to examine the interaction between the developmental condition of the child and psychosocial climate of the home. More specifically, the study attempted to examine (a) which home environmental variables are influenced by child's developmental condition and (b) whether child's developmental condition interacts with the background variables to influence the psychosocial environment of the family.

The data in this investigation were collected as one aspect of an ongoing 3-year Department of Education

supported study of language interaction within and among three groups of children; non-handicapped (NH), Down's syndrome (DS), and language-impaired (LI) and their mothers.

Method

Subjects

The subjects consisted of 34 NH (18 female, 16 male), 22 DS (9 female, 13 male) and 18 LI children (5 female, 13 male) and their mothers (all Caucasian). Sixty six percent of the mothers had attained college education or higher, and 37% had less than a college education. The mother-child dyads were recruited through several school districts and day-care centers in the Dallas/Fort Worth Metroplex, the Down's syndrome Guild, and the Callier Center for Communication Disorders of the University of Texas at Dallas.

The demographic and background characteristics of the children, the parents, and the children's developmental variables, which played important roles in subsequent analyses, are shown in Table 1. Other variables measuring children's developmental status such as the Adaptive Behavior Composite or the Vineland Adaptive Behavior Scale (VABS) (Sparrows, Balla, & Cichetti, 1984), and parent's demographic variables such as mother's employment status

and length of marriage did not play a significant role in this study. (Consequently, they are not presented in tabular form).

According to Karyotype, 21 DS children were diagnosed as Trisomy 21 and one as translocation. The language-impairment of LI children was attributed primarily to middle-ear infections, cleft palate (surgically corrected), and nonspecified causes. One of these children was diagnosed as mentally retarded.

Instruments

The instruments were selected to measure: (a) psychosocial environment of the family; (b) developmental status of the child, and (c) demographic and background characteristics of the subjects.

The Family Environment Scale (FES) developed by Moos and Moos (1981) was utilized to assess the psychosocial climate of the home. The FES consists of 10 subscales and is designed to measure certain general features of the social or interpersonal climate of the family. It surveys a family member's perceptions of the patterns of relationships within the family, dimensions of personal growth, and the nature of the family's customary organizational and decision-making activities (Fowler, 1981). Reported internal consistencies

range from .61 to .78, and test-retest reliabilities range from .68 to .89.

For the purpose of this study, a detailed demographic background and characteristic inventory was developed. The inventory consisted of 55 items grouped into three categories: child, parents, and physical environment. Questions included areas such as health history of the child, educational attainment and employment status of the parents, and average hours per week mother and child spent on such activities as reading, watching T.V., and outings.

The developmental status of the child was assessed by the Vineland Adaptive Behavior Scale, The Survey Form. The VABS yields 5 domain scores and 11 subdomain scores measuring such areas of development as communication, motor, and living skills. Reported internal consistencies for VABS range from .89 to .98 and test-retest reliabilities range from .76 to .93.

Procedure

Two trained female observers made two visits to the homes of participants. In the first visit, the VABS and the demographic inventory were administered. Mothers were asked to fill out the FES. In the second visits, the FES completed by the mother was collected and the observers

conducted an informal interview which addressed the mother's expectations of the child and perception of the handicapping conditions.

Results

Responses on the FES were subjected to factor analysis, using the maximum likelihood extraction method with iteration and varimax, orthogonal rotation (SPSSX, 1986). Three home environment dimensions extracted for the FES were consistent with Moos and Moos (1981). However, comparison of the scales making up each dimension in this study and those in the Moos and Moos study, we found that the composition of the dimensions differed somewhat. Where appropriate, Moos and Moos's labels for the dimensions were used. The scales (Table 2) that contributed most to Dimension 1 reflect harmonious family environment with more emphasis on intellectual and cultural activities and less emphasis on recreation. A positive score on this dimension indicates a home climate fostering certain developmental processes that may be achieved by family living. This dimension was labeled "Personal Growth."

Scales in Dimension 2 are measures of openness, autonomy, tension and stress within a family. This dimension was called "Autonomy/Control." A positive score

in this dimension portrays a family environment where there is less friction and control but more autonomy. In addition, independence and open expression are encouraged for individual family members.

The scales loading on Dimension 3 are very similar to those found by Moos and Moos (1981), with one exception. In this study, Moral-Religious Emphasis scale loads with Organization and Control on Dimension 3. The last two scales are system-oriented in that they obtain information about the structure of organization within the family and about the degree of control usually exerted by family vis-a-vis each other. A positive score in this dimension indicates more religious oriented activities and emphasis on system maintenance. Thus, this dimension was called "System-Maintenance."

To observe the effects of mother's education, child's handicapping condition, and sex, on the psychosocial climate of the home factor scores were calculated utilizing only those items that had loadings of more than .40 (with a mean of zero and unit standard deviation [SD]) for each subject. A three-way analysis of variance (education, condition and sex) was carried out on each of the three home environment dimensions. The result of these analyses

on the personal growth dimension showed that education of the mother was the only significant main effect: $F(1,72)=4.81$, $P < 0.036$. No significant interaction terms between sex handicapping condition of the child and education of the mother were observed. Mothers with less than college education scored lower on the personal growth dimension than did the mothers with college educations. This implies that mothers with higher education tend to provide a harmonious home environment which fosters intellectual and cultural interests. Mothers with less than college education tend to be more recreationally oriented.

Three-way analysis of variance showed that the Autonomy/Control dimension was significantly influenced by a main effect for child's handicapping condition: $F(2,72)=5.70$, $P < 0.005$. No significant interaction terms between sex, handicapping condition, and education of the mother were found. A post hoc analysis using Tukey's HSD test was carried out on the difference among the handicapping conditions of the children. The means and SD's for each condition reported in Table 3, indicated that the mean for Autonomy/Control dimension for homes with nonhandicapped children (.34) was significantly higher than were the means

for the Down's syndrome (-.27) and language-impaired (-.34) children, $P < 0.05$.

A three-way analysis of variance for System-Maintenance revealed that no main effect played any significant role. However, a two-way interaction between mother's education and child's developmental condition influenced this dimension significantly: $F(2,72=4.41$, $P < 0.01$. A Tukey HSD test was carried out on the differences between developmental condition and mother's education. It was found that the mean (.52) System-Maintenance scores for homes with Down's syndrome children with mothers with less than college education and (.43) for the homes with the language-impaired children with mothers with college education were significantly higher than the other groups, $P < 0.05$ (see Table 3).

Correlations were calculated between the home environment, demographic, and child's characteristic variables. Only those which attained a significance level of 0.05 or higher are reported in Table 4. No significant correlation was found between the demographic, child characteristic variables, and System-Maintenance dimension. This is reflected in Table 4.

Discussion

The question addressed in this study was which aspects of home environment are influenced by the handicapping conditions of the child. General conclusion is that certain aspects of home environment do seem influenced by the handicapping condition of child, but influence is by no means simple. The results of this study showed that neither the handicapping condition nor the sex of the child affected the Personal Growth dimension of the family environment. Regardless of the child's sex or handicapping condition, mothers with college education emphasized a growth promoting environment for their children, i.e., more inclined toward intellectual and cultural activities than recreational activities. Furthermore, a high level of Personal Growth was associated with families with high SES, low parity, and higher educational attainment of the mother. Children in this type of family environment have high receptive communication skills as determined from VABS and have been more exposed to the outside world.

Although the child's handicapping condition did not affect the Personal Growth dimension, the results showed it played an important role on the Autonomy/Control dimension. Families with nonhandicapped children scored high on the

Autonomy/Control dimension, which indicates that the home environment promotes independence, openness, and expressiveness for individual family members and reduces conflict within the family. It is also interesting to note that as the parents get older and children move into toddlerhood or beyond, or number of children increases in the family, or children acquire more living skills such as moving around freely in the environment, (as measured by VABS) the Autonomy/Control dimension is reduced. In other words, the family environment becomes more controlling and less open.

A closer look at Table 3 shows that the mean of the Autonomy/Control dimension for mothers with language-impaired children is lower than for mothers with Down's syndrome children. But, the difference was found not to be statistically significant. However, the trend seems to be in line with the findings of Willner and Crane (1979), that the mothers of language-impaired children seem to have more difficulty accepting the child's handicapping condition resulting in higher expectation for the child, and therefore leading more toward control attempts and conflict within the family. This point was observed more clearly in our informal interview which was carried out in connection

with the study. To support the validity of such statements, further study is warranted.

The System-Maintenance dimension was not influenced directly by any variables considered in this study. However, a two-way interaction of mother's education and child's handicapping con tion played a significant role. This implies that System-Maintenance is a complex dimension and cannot be simply explained by a direct effect of any one variable. Other factors such as the role of the father in providing support or decision-making, structuring, and organizing home environment may possibly influence the System-Maintenance dimension.

The findings reported in Table 3 show that the means of the System-Maintenance dimension were significantly higher for mothers of Down's syndrome children with low education and mothers of language-impaired children with college education. This similarity between the two groups could be interpreted as indicating that the mothers with more education seem to have more difficulty accepting that their children are handicapped than mothers of language-impaired children with less education. In other words, less educated mothers are more accepting, and do not deny child's speech problems, in comparison with mothers with

more education. The reverse of this observation was true with mothers of Down's syndrome children. In other words, high educated mothers more readily accept the fact that their children are handicapped than less educated mothers of Down's syndrome children.

It appears that the developmental condition of the child influences the three dimensions of the home environment differently. This may be due to a host of different factors such as availability of formal and/or informal social networks which could provide information, services, guidance, and support to the mothers. The influences of such variables were not addressed in the present study. Further research is needed to consider the effect of such environmental support variables on the home environment of handicapped children.

TABLE 1

Demographic Characteristic and Children's Developmental Status Variables (N=74)

Variables	Mean	SD
Child's Age	41.4 (months)	20.1
Communication Sum	33.5 (months)	12.5
Receptive Communication	42.7 (months)	16.8
Living Skill Sum	34.6 (months)	12.6
Mother's Age	32.4 (years)	3.2
Father's Age	34.8 (years)	3.6
Outside Exposure	6.4 (per week)	3.9
Parity	2.4	1.3
SES	52.4	12.4

TABLE 2

Factor Loading for Different Dimensions of Home Environment

Moos Scale Item	Factor Loading 1	2	3
Intellectual-cultural orientation	99		
Active-recreational orientation	42		
Cohesion	49	46	
Expressiveness		59	
Conflict		-55	
Control		-54	63
Organization			63
Moral-religious emphasis			43
Independence		40	

TABLE 3

Effect of Condition on Factor Scores

Condition	Autonomy/Control			System - Maintenance[a]			
		Factor 2		Factor 3			
				Mean		SD	
	N	Mean	SD	H	L	H	L
NH	34	.34	.71	-.15	-.04	.69	.87
DS	22	-.27	.85	-.28	.52	.74	.48
LI	16	-.34	.75	.43	.31	.89	.69

a H = Mothers with college degrees or higher
L = Mothers with less than college degree

TABLE 4

Correlations Between FIS and Demographic and Child Characteristics Variables (N=72)

Variables	Personal Growth Factor 1	Interpersonal Relationship Factor 2
Child's Age		-.28
Communication Sum	.20	
Recap Com	.23	
Living Skill Sum		-.21
Mother's Age		-.34
Father's Age		-.36
Outside Exposure	.24	
Parity	-.20	-.55
SES	.29	

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