

Original article

Role of mother's perceptions on their child development on early detection of developmental deviation

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ABSTRACT This report aimed to assess mothers' perceptions on normal and deviation of development in their children. The study was done in underfive children and their mothers from May 1st 1999 to June 30th 1999 who visited the Nutrition, Growth & Development Clinic of the Child Health Department, Sanglah Hospital, Denpasar. A total of 76 children between 2 and 59 months of age and their mothers were enrolled. Data were collected by interview with mothers concerning the following items: perception of their children development, age of child, sex, mother's education, mother's job, number of sibling, and mother ability in making referral decisions. Denver II screening test was administered to each child to identify of development status as a gold standard. Sixteen (21%) children was identified as having developmental deviation (by mother's perception) and 21 (28%) by authors using Denver II screening test. The mother's perception sensitivity was 67% and specificity was 97%. There were no significant differences of development status perception according to child's age, mother's education, mother's job, and number of sibling. Most of mother's perceptions about normal development were if the body weight increased and had no disability. Most of the sources of information about development was from the relatives. Thirteen of 21 children who had developmental deviation were referred by mothers. We conclude that mother's perception can be used as early detection of developmental problems. Mother's concerns of their children growth development had focused on again body weight, physical developmental and gross motor skill. [**Paediatr Indones 2001; 41:264-267**]

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FUNCTIONAL DEVELOPMENT ACQUIRED BY A CHILD DURING the first five years of life forms the basis for future development. Development of skills can be independent of other skills, however development of a single skill is usually influenced by multiple interactive factors. Underfive age group is a sensitive period for deviation of growth and development, in this period basic personality is built up.¹⁻³ Family as close environment factor strongly influences child's growth and development. In order to develop child's quality of life, early detection of growth and development deviation is very important for necessary early intervention so that the child's growth and development can be optimized.

However, early identification of children with growth and developmental problem by family is influenced by manner in which family (mainly mother or caretaker) recognize of the deviations and decide referrals. Child developmental deviations may be recognized by mother by comparing with their peers of the same age, when they visit clinics or pediatricians, and by basic knowledge about child development.⁴

Previous study from the Growth & Development Clinic of the Child Health Department, Dr. Soetomo Hospital Surabaya (1988-1991) indicated that most patients (76.8 %) were referred at the age of more than 1 year. Early detection and management will give a better outlook.⁵ In our clinic (1986-1987), 43.5% of all visitors showed abnormal DDST.⁶ Previous study illustrated more cases with handicapped children referred to the hospital, conversely mother was effec-

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tive as a screening tool for early detection. This study aimed to assess the accuracy of mother's perceptions on normal and abnormal children and were compared with results of Denver II test as a gold standard.

Methods

This cross sectional study was done in 76 underfive children and their mothers. Subjects were randomly selected from those visited for the first time to the Nutrition - Growth & Development Clinic of the Child Health Department, Sanglah Hospital Denpasar from May 1st 1999 to June 30th 1999. We included children 3 to 60 months old age and their mothers who agreed to participate, by excluding children with history of neonatal asphyxia or other serious illnesses, major congenital malformation such as hydrocephalus, congenital hypothyroidism, or physical impairment.

Data were collected by interviewing mothers using a prepared questionnaire. The questions include age, sex, number of siblings, mother's level of education and job. The developmental status of the child (normal or delayed), the sources of information about development deviation and mother's ability in making referral decisions were examine. We used Denver II test to each child to identify development deviation and used it as a gold standard.

We judged that mother correctly determine her child developmental status if her opinion was similar to Denver II test interpretation. Children were categorized as likely having developmental deviation if mother's opinions was appropriate with abnormal Denver II screening test. Mother was judged as able to make referral decision if she referred appropriately the child who had developmental deviation.

Mother's level of education was classified as illiterate (no schooling or primary school drop outs), finished primary school, finished junior high school, finished senior high school, and university graduate. Mother's job was classified into part-time worker, farmer, private employee, or government employee.

The interpretation of Denver II test was as follows: Normal (no delay and a maximum of 1 cautions; Abnormal (two or more delay); Questionable: (one delays and/or two or more cautions). The second test was done in 1 – 2 week to impress of moment factor. Data were analyzed by SPSS-S program. Statistical significance was set at $p < 0.05$. To assess

the accuracy of early detection by mother, we calculated sensitivity and specificity for development deviation.

Results

The total number of subjects was 76 children, consisting of 40 boys and 36 girls, with the age range from 2 to 59 months (Table 1).

TABLE 1. DISTRIBUTION OF SUBJECTS BY AGE GROUP AND SEX

Age group (months)	Boys	Girl	Total
2 - 12	10	5	15
13 - 24	13	12	25
25 - 36	8	9	17
37 - 48	6	6	15
49 - 60	3	1	4
Total	40	36	76

There were 16 children judged as having developmental deviation by mothers, and 21 were judged abnormal by Denver II test. When they were grouped into age groups, mother's educational level, mother's occupation, and number of sibling, there were no significant difference between groups of children judged to have developmental deviation by mothers and by Denver II test (data not shown).

Table 2 shows that the accuracy of development deviation based on mother's perceptions was compared with Denver II screening test.

TABLE 2. THE ACCURACY OF DEVELOPMENTAL DEVIATION BASED ON MOTHER'S PERCEPTIONS WAS COMPARED WITH DENVER II SCREENING TEST

Mother's perceptions	Denver II		Total
	Deviation (+)	Deviation (-)	
Deviation (+)	14	2	16
Deviation (-)	7	53	60
Total	21	55	

Normal development was defined by mother's perceptions as follow: 32.9% if the body weight increased and absence of disabilities; 21.1% if the body weight increased and the child was able to walk; 18.4% if the body weight increased and the child was involved in play with his friends; 15.8% if the body weight increased and well performance; 7.9% if the body weight increased, no disability, and the activity

was concordance with his age; 3.9% if the child showed no physical impairment.

The information about development deviation was given by their family (38%), mother's experience (26%); friends or neighbor (21%); hospital or clinic (8%); television, radio, or magazine (4%); 3% did not know where the information came.

Discussion

Early screening is useful to find out the growth and development deviation so the effort for early stimulation and carefulness can be done earlier. There is growing evidence that early intervention has positive effects on development, especially when mother are involved so development deviation should be identified early

In our series, of the 76 children, we found that 16 (21%) children had development deviation by mother's perceptions compared with 21 children (28%) had abnormal by Denver II test. Most of them with a range between 13 – 48 months (76%). Although development deviation was found in the age group of 2 – 12 months, but these finding indicated that development deviation was recognized in older children. Probably caused by development changed in children less than 1 year of age proceeds at more rapid than in older children and may be subtle,⁷ and also the tasks of development in older children had more observation than young children. Whereas mother's estimated of child developmental was greater range than chronologic age. The same findings were also found by William and Soetjningsih⁹ that mother's estimated of children developmental was in a greater range in rural area than the urban. But Glascoe¹³ found that parent's overall age – estimated provides a sensitive and specific indicator global developmental status.

Mother's education is one of the factors in growth & developmental children as assumption that educated mothers are better able than those without high education to take information. So it can be easily to recognize of being development deviation. Retayasa et al¹⁰ reported that early detection of deviation of child's growth and deviation with Kalender Tumbuh Kembang Balita (KTKB) compared with Denver II screening test resulted that there was not significant difference in mother's education and development deviation. Reside of study was outside Denpasar.

The role of mother as caretaker is most important at the beginning of the life, the harmonized intimate relation between mother and a child is the absolute for processing an insurance of growing and development. In this study most of mothers were housewives, who had more time with their children, statistically analysis were not significant with developmental deviation. The role of mother's attention was determined not only by intensity contact represent but the quality also to be important. Parenting experience (define by number of sibling in the family) were sources information about development deviation through compare their siblings. According this study, we found that 71.43% (15 of the 21 children) had two or more siblings. Statistical analysis was not significant difference. Other studies in USA showed an absence of relationship between the accuracy of mother's perceptions and their levels of education or parenting experience (quoted from Glascoe FP & Dworkin PH).

Mothers are ready sources of clinical information. The rational is to help pediatricians make optimal use of clinical information from mothers to increase the accuracy judgment in detecting developmental problems in children. Retayasa et al¹⁰ reported that the KTKB 20 pictures had higher sensitivity than 12 pictures (75% vs. 50%) for early deviation detection. In this study, we found that the sensitivity of significant perceptions in detecting of development deviation was 67% and sensitivity 96%. In this study mother's perceptions were of a simple instruments for screening deviation.

An important finding in this study was that mother's perceptions focused on gross motor skills and language. According to mother's description of their normal a child development, most of them focused in increase of body weight and ability to walk or activity. The findings by Glascoe¹² in USA that parents concerns of children without ability were significant concern on difficulties with eating, sleeping or having motor skills. The other study was found that 70% of children who failed a standardized measure of behavioral and emotional problem could be identified by parent's concern.

Glascoe¹¹ found that 70% of children with disability could be accurately referred on the basis of parent's concern. In this study, we found that the accuracy of referral decision with sensitivity 66.66%.

There were 8 children that should be referred, conversely didn't referral by mother. However, referral on the basis of mother's perception may not be an appropriate response.

We conclude that mother's perceptions offer an effective method for early detection of developmental problem. Mother's concern of their children's growth & development had focused on again of body weight, physical developmental at gross motor skill. Family was a main of source information in detection of developmental deviation. Recognition to steps of developmental and influenced factors should be known by mothers to evaluate their children. Father research is needed on a large sample

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