

ORIGINAL ARTICLE

Balinese Mothers Developmental Timetables For Young Children

by

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Abstract

Cultures differ from one another in the types of competence that adults encourage in children, the age at which they expect a given skill to be acquired, and the level of proficiency they want children to achieve. The concept of developmental timetables refers to the ages at which parents expect skills to appear in children. The purpose of the study was to investigate the developmental timetables of rural and urban mothers in Bali, Indonesia, and the extent to which mothers teach children various skills before Kindergarten age. The total sample was 200, 100 rural mothers and 100 urban mothers in the regency of Badung. Mothers responded to a structured questionnaire which was read to them aloud by trained interviewers who then recorded the responses. All the mothers had children between 4-6 years old; equal numbers of male and female children were included, and the entire economic and educational ranges were represented. Results showed that urban and rural mothers differed in their age expectations of children's development. Rural mothers reported wider age ranges as well as older mean ages of skill acquisition by children compared to urban mothers. Furthermore, specific caregiving activities, were performed earlier by urban mothers compared to rural mothers. However, reading the first book to the child was both quite late for urban and rural mothers. The implications of the findings to child development were discussed.

Introduction

The concept of developmental timetables refers to the ages at which parents expect various skills to appear in children [1]. Cultures differ from one another in the *types of competence that adults encourage in children, the age at which they expect a given skill to be acquired, and the level of proficiency they want children to achieve* [2]. Cross-cultural research has typically focused on between culture differences in parental attitudes, beliefs, and practices. However, differences in parental beliefs and behaviors exist within cultures as well as between cultures. Within culture variations arise from differences in parental education, economic status, proximity to centers of social change such as urban areas, and so forth. These factors may explain how developmental expectations and *goals are acquired by parents for their children, and how these goals are implemented through childrearing behaviors to influence the developmental process* [2].

The aim of the study was to investigate the developmental timetables of rural and urban mothers in Bali, Indonesia and the extent to which mothers teach children various skills before school. The knowledge generated by the study may be useful for early childhood education in Bali and perhaps other parts of Indonesia as well. On an applied health care level, the knowledge gained may also assist in the implementation of certain beneficial programs that may influence national development. One such program is the implementation of a developmental approach in the primary health care of children and their parents [3,4]. Future directions of this research lie in this area; the linkage between social science research, evaluation research, and health care delivery. For example, Frankel and Roer-Bornstein (1982) have underscored the need to examine traditional and mo-

dern influences on parental beliefs and practices in rearing children and how these may affect parental responses to assistance or intervention programs provided to communities [5]. Super (1987), Morley (1979) and Werner (1979) have expressed similar views [3,6,7].

Background Information

To serve as background for the study, the previous research by Williams are summarized briefly, followed by the studies done by Soetjningsih and others in Bali: (A) Norms for the Metro-Manila Developmental Screening Test (MMDST) were developed in 1977-80 on 6000 Manila children; test-retest, tester-observer, and mother-tester reliability as well as concurrent and predictive validity were established [8]. (B) Construct validity of the test were also demonstrated, by means of the known-groups method, on perinatal risk children [9], chronically-ill children [10], and with mildly malnourished children [11]. (C) The favorable effects of developmental stimulation provided by mothers of premature babies were shown, as indicated by the significantly improved outcomes of infant development [12]. (D) The efficacy of a comprehensive rehabilitation program of severely malnourished children (which included not only nutritional build up but also teaching mothers skills in developmental stimulation of the children and skills for economic livelihood such as cottage industry production) had also been demonstrated [13]. (E) A cross-cultural comparison of norms on a developmental screening test (DDST) standardized in 5 countries (Manila, Denver, Tokyo, Okinawa and the Netherlands) was also done [9]. The test, appropriate for children 0-6 years old, evaluates 4 aspects or sectors of a child's behavior development, namely gross motor, fine mo-

tor-adaptive, language, and personal-social. The results of comparison of the median ages of attainment of (i.e. the ages at which 50% of the normative samples attained) the test items, among the 5 groups, showed that overall performance of Manila children was most different from Denver and the Netherlands children, and least different from the Okinawa and Tokyo children. Thus, there was an Asian-Western dichotomy on all sectors of the test (except the gross motor), although a trend appeared to show that the Tokyo norms were more different and the Okinawa norms more similar to the Manila norms. This trend seemed to suggest that economic growth may influence differences across cultures in the ages of attainment of psychosocial skills or behaviors in young children.

Past ethnographic studies have revealed differences in rates of development of children across cultures and described child-rearing practices that might explain the findings. For example, Super (1976), comparing 12 ethnic groups in East Africa, found that sitting and walking were advanced among the children studied. This was attributed to mothers valuing these skills and the early training of babies, a finding which had been reported in a later study by Craig and Albino (1982)[14]. From quite a different perspective, Ross and Bruner (1963) found that family interactions, varied with two levels of acculturation in Sumatra, Indonesia [15]. That this, peasant families in a mountain village used shaming, while acculturated families in a seacoast town used guilt as forms of social control of children's behaviors. From yet another perspective, Whiting (1974) had noted the common use of sibling caregiving in many developing countries [16]. The effects of this practice and the use of mother substitutes (yayas or nannies) on children's development had been studied [8].

Edmondson (1990); in an anthropo-

logical study of a village in East Bali 10 years following her initial study, focused on the aged, the family, and intergenerational relations [17]. Among others, she found that instead of foregoing their traditional economic responsibilities to parents, educated children had contributed money to their parental households. This money was used to build permanent houses. Food, other living expenses, and the schooling of younger brothers and sisters up to senior high school level or higher. Thus the "investment in children's education was a calculated economic strategy designed to improve the economic well-being of parents and children. Since investment in education greatly increased the cost and value (income potential) of children, fewer were necessary for old age support" (p.2). This was contrary to Caldwell's net wealth flow theory of fertility decline which maintains that the catalyst for fertility decline in lesser developed countries (LDCs) is the socialization of children to western parent-child relations. That is, at school, children are taught to forego their traditional economic responsibilities to parents, rendering them economic liabilities. Parents therefore desired smaller families. This theory was not supported by Edmondson's findings.

Using interviews and participant observations of 113 women through at least two trimesters of pregnancy and after delivery, Fetters (1991) studied their perceptions, rituals, and care related to pregnancy, birth, and the postnatal period. The village was located in East Bali, where majority of the household heads were sharecropping peasants, where women helped in agricultural activities, and where young girls dropped out of school to weave cloth for the tourist trade. She found that the women in her study saw little need for prenatal care. They practiced self-care, mainly by keeping the stomach cool while pregnant (i.e., by

drinking *lolob*, consisting of boiled leaves, roots, and herbs, and avoiding hot foodstuff like sugar and sour foods like mango, vinegar, and pineapple), and easing symptoms of fatigue, heartburn and nausea or fever. Mothers believed that illness occurred *when something is out order (tidak cocok or not quite right)*. Good health was a constant battle to keep the elements of hot and cold in their proper balance. Traditional birth attendants or *Balian Manak* delivered nearly 50% of Balinese babies at home. There were 21 TBAs who practiced in the village; only 6 however had completed the training program provided by the government.

Soetjningsih and Sudaryat (1990), in a survey of 150 urban and rural Balinese mothers of children between 4 months and 5 years old (mean = 30.4 months), reported that toys, children's books, and magazines were very limited [18]. Only 17% of the mothers reported having books and magazines at home. Also, only 24% owned cassettes of children's songs, and 59.3% of the children had never watched TV. The 5 most commonly toys used by children were miniature cars, 34%, ball 33.3%, doll 26.7%, plastic gun/sword 12.7%, and tricycle 6.7%. In a related study using the same sample of mothers, Soetjningsih (1990) noted the health status of children of working mothers [19/20]. The distribution of mothers occupations were as follows: farmer 60.6%, laborer 16.6%, government employee, 12.4%, merchant 11.3%, private employee 12.4%, and working at home as tailor, handicraft maker, etc. 5.1%. The mothers worked varying lengths of hours, from less than 3 to more than 8 hours a day; although, the majority worked 6-8 hours. The results showed that the nutritional status of 70% of the children were rated as good; 83.3% had growth charts. BCG immunizations were received by more than 90% of the chil-

dren; measles immunizations by more than 75%; and DPT/Polio immunizations were completed by more than 70% of the children. Personal hygiene, however, was rated as poor; more than 60% of the children had no toothbrushes. The majority of the children (55.8%) were cared for by grandmothers while the mother worked; the rest of the caregivers were aunts (17.5%), older brothers/sisters (8.2%), housemaids (8.2%), sent to neighbors / other family (8.1%), the mother herself (4.1%), and grandfathers (3.1%). Soetjningsih also reported that the fathers participated in child care in various ways. Ranked in the order of activities frequently performed were: playing with the children (96%), help take care of sick children (92%), bring child to PusKesMas/doctor (91%), accompany child to bed (83%), change child's clothes (73%), give child a bath (69%), and feed the child (66%) [19/20].

Four studies, done in Australia, Israel, Japan, and the United States, provided models for the current study. Ninio (1979) studied two subgroups in Israel (families from Asian-African country of origin and those from European countries), a total of 104 families. He found sharp differences in the expected ages at which babies showed various perceptual and cognitive achievements (see, hear, understand words, identify pictures of subjects). However, similarities were found in the expected ages to stop breastfeeding, start toilet training, and other *physical achievements*, which was attributed to advice received from widespread well baby clinics.

Frankel and Roer-Bornstein (1982) studied two ethnic groups in Israel (Yemenites, N=30, and Kurds, N=30) and found that both traditional and modern influences affected parental infant-rearing beliefs [5]. For example, modernization was found to be associated with an attribution of greater competence to the

young infant and an increased recognition of the psychological characteristics of infant development and the psychological demands of infant caretaking. Hess et al., (1980) found differences in the developmental timetables of Japanese (N=58) and American (N=67) mothers with minimal effects of socio-economic status [2]. For example, they found that mothers in Japan expected earlier control of emotions, and mothers in the U.S., ear-

lier social skills with peers and earlier *verbal assertiveness*. Finally, a fourth study compared mothers of two cultural groups in Sydney, Australia (Australian-born, N=38, and Lebanese-born, N=43)[1]. They found that gender and birth order had minimal effects while ethnicity had strong effects on mothers developmental timetables, and on the extent to which mothers taught various skills before children attended school.

Methods

In the present study, the comparison between rural and urban mothers covered the following areas: (A) The expected ages for the attainment of 24 skills appropriate for six-year-old children, from Williams MMDST study (1982) 6 each of the 4 aspects of behavior: gross motor, fine motor-adaptive, language, and personal-social [8]. (B) Expected ages for 40 skills, from the studies of Goodnow et al., (1984) and Hess et al., (1980)[1,2]. Some items were modified to suite the conditions in a developing country. The items are grouped into 8 categories: emotional maturity, compliance, politeness, independence, social skills, verbal assertiveness, school-related skills, and others. (C) Expected ages for 12 skills and 11 child-rearing practices, modified from Ninio's study (1979)[21]. (D) The age considered appropriate for starting school. (E) The skills mothers reported themselves as teaching before school, and the method of teaching used. (F) The mothers concepts of a healthy baby/ 6-year-old, a good baby/ 6-year-old, and a smart or bright baby/ 6-year-old, modified from Frankel and Roer-Bornstein's study (1982) [5].

Description of Indonesia and of Bali

Indonesia. Indonesia stretches across one-seventh of the globe between Malaysia and Australia, with a total area of 5

million sq. Km, 2 million sq. Km. of which are land masses, and the rest, its sea area. Over 13,000 islands comprise Indonesia, 992 of them permanently settled [22] (Figure 1). Among the large islands are Kalimantan, Sumatera, West Irian, Sulawesi, villages. Polynesians comprise 95% of its ethnic groups. However, there are more than 300 ethnic clusters and over 250 dialects and various religions, a complex society unified in recent times by a national slogan, Unity in Diversity (*Bhinneka Tunggal Ika*) [23]. In 1988, 169.5 million people inhabited Indonesia, up from 158 million in 1983, an increase of 2 % [24]. The majority (80 %) of the people live in rural areas. Life expectancy is 54.5 years for males and 57.2 years for females. The infant mortality rate is 70/1000, down from 150/1000 in 1961. The range, however, is wide, with Yogyakarta having the lowest (27.1), and West Nusa Tenggara having the highest (120.9); Bali has 53.4. The major causes of death are tetanus, perinatal disorders, respiratory diseases, and diarrhea. Similarly, maternal mortality rate per 1,000 live births is 1.3 for Yogyakarta, 7.8 for Nusa Tenggara, and 2.3 for Bali; the national average is 4.5 [25]. It is estimated that about 14% of the newborns had birth weights less than 2500 Gms; there is, however, an insufficient reporting of

these data as 80 % of births are home deliveries, often by traditional birth attendants (TBAs). Malnutrition in varying degrees afflicts 30 % of children under 5 years of age [24].

Health care Delivery. The public health center or *PusKesMas* (*Pusat Kesehatan Masyarakat*) is the smallest organizational health unit that provides integrated health services to the community. It provides basic services for mothers and children, as well as family planning services and adult health care, and is open between 8 A.M. and 2 P.M., Mondays through Saturdays, except on holidays.

In 1983, there were 5,021 *PusKesMas*, 13,636 *PusKesMas Pembantu* (public health subcenters), and 111, 579 weighting posts (*Posyandu*). The health manpower consists of about 15,000 MDs, 20,000 nurses, 18,000 midwives, and 40,000 nurse- or midwife-assistants. Most doctors live in urban areas [23]. In 1980, there were 1,208 hospitals, with a total of 98,543 beds. Two are Class A national referral hospitals providing various subspecialty services; one is located in Jakarta, and the other, in Surabaya. There are 13 Class B hospitals providing various specialty services, with a 400-1,000 bed capacity; and 79 Class C hospitals which have at least four specialty services (surgery, internal medicine, OB-GYN and pediatrics) and about 100-400 beds. Class D hospitals, 221 of them, provide general health services with a capacity of 25-100 beds [23].

Major government programs deal firstly, with the reduction of infant, perinatal, child, and maternal mortality rates through various immunizations, the control of diarrhea through oral rehydration, and the training of TBAs. Secondly the control of family size through an active family planning program. Thirdly the control and prevention of malnutrition through growth monitoring of children under five years of age, and teaching

mothers about nutrition, hygiene, sanitation, and child-rearing. Fourthly, a literacy campaign launched from 1979 to 1983 to teach 5.5 million women how to read and write--this program was based on survey findings that 2/3 of 17 million illiterate people between ages 7 and 44 years old were women [24].

Bali. Bali is an island 144 km. long by 80 km at its widest. With a population of about 6 million. It is the second most densely populated island in Indonesia, next to Java. It has the same climate, flora, and fauna as Java. Northern Bali has a west-to-east volcanic chain (1500 - 3000 m. high), an extension of Java's central range [22]. In southern Bali, ricefields are carved out of hills and valleys. The capital, Denpasar, is located in this area, and the southern seacoasts of Kuta, Sanur, and Nusa Dua are crowded with a wide variety and price-range of accommodations and commercial establishments that cater to tourists. The industry is now aiming at 1 million tourists a year -- one visitor for every 3 Balinese [22]. Bali lies 8 degrees south of the equator. The average temperature is 26 degrees C and the humidity is usually high [26]. The Hindu Dharma is religion practiced by 95% of the Balinese population. The layout of a Balinese village and the religious life of its members is closely tied to religion and the religious life of the people. The *banjar* is the basic traditional governmental unit of Balinese villages. A village (*dusun* or *desa*) may have several *banjars*, each *banjar* having some separate allegiance to certain temples, places, and holidays. All decisions concerning the welfare and future of the village people have to be approved by 100% of the married men in the *banjar* [26]. The leader of the *banjar* is elected by its members and approved by the gods through a medium. When a man marries, membership is compulsory. Each family pays a subscription fee, and all household heads are re-

quired to attend regular meetings or pay a fine. The banjar runs its own communal bank from which villagers may borrow to buy farm equipment, cattle, etc. The banjar supports and maintains village temples and ditches, owns a gamelan, handles taxation, cock-fighting, divorces, duck herding, helps to arrange and finance weddings, family celebrations; temple festivals, cremations, and community feasts. The banjar advises villagers on matters of religion, marriage and morals [22]. Balinese women often have independent incomes. They are also in crease of cultivating the fields, as well as the landmarks of their family's life considered important or magic: birth, the first cutting of nail and hair, filing of teeth, piercing of earlobes, marriage, and death [22].

Research Settings: Rural and Urban

Four *PusKesMas* were used as study sites, one rural (Abiansemal I-Blahkiuh), two peri-urban ones (Denpasar Selatan - Seseetan and Denpasar Timur II - Sumatera), and one urban site (Denpasar Timur I - Kota). All four areas were located in the regency (district) of Badung, in Bali.

Rural. Located 20 km North of Denpasar, Abiansemal I was one of two *PusKesMas* in the area. It served 34,806 villagers, with health care personnel consisting of 2 MDs, one dentist, 10 nurses, 7 midwives, 3 sanitarians, one clerk, 2 dental assistants, one pharmacy assistant, and 4 health center assistants. Abiansemal I, the rural site had a demonstration project health center. The first to be established in Indonesia. It had since been replicated in the whole archipelago.

In 1990, the abiansemal land areas was 35.76 km²: 1,446,395 Ha were planted with rice; 1,192,896 Ha, with corn,peanuts, etc; 328,595 Ha, with coffee and various fruit trees; 100 Ha, were forests; 760 Ha, were fishponds, 50,955 Ha. Were used in other ways (*PusKesMas*

records, 1990). Farmers therefore comprised 90% of the occupational groups, with incomes augmented by raising and selling animals such as ducks, chickens, and pigs. About 10% were wage-earners from various government jobs and small businesses. There were 6,371 households in abiansemal 1, with an average of 6 persons per household. The population density per square km. was 943 the population growth between 1980 and 1990 was 0.66%.

There were 1725 children under 5 years old, with about 435 children attending kindergarten (4-5 years old); 842 children attended Grade 1 (6-years-olds). Forty-two elementary schools were spread out in the abiansemal area; there were 6 junior high schools and 3 senior high schools. Schooling was free until this level. The average number of children in a family was 3-4, compared to 5-12 before the national family planning program was actively implemented.

PusKesMas abiansemal I daily served 100 patients. At the main health center, in addition to direct patient sick care and handling of refferals from the Posyandu, various national programs of immunization, nutrition promotion including breastfeeding, family planning and sanitation were communicated trough health teaching. Home visits and home deliveries were also done. Outside the main health center, monthly weighing posts; called Posyandu, also took place in the villages. That is, the children under 5 years of age and their parents, pregnant and lactating women participated in the prevention of malnutrition by monthly weighing of the children and plotting the weights on growth charts. Each mother and child went trough registration, weighing, recording, and interpretation of weights, and were also provided with toys for mental stimulation,immunization and health education on nutrition,including breastfeeding promotion

and family planning. They were also provided capseals of high - dosage Vitamin A (200,000 I.U) and some supplementary food for the infant made of local produce (e.g. boiled mongo beans). Care was also provided to pregnant women. When the need arose, simple treatments for children were given, such as oral rehydration for diarrhea. Technical care (immunizations and treatments),training and guidance were provided by a medical doctor and two nurse- midwives. The head of Village Development Council (banjar) also assisted the staff.

The weighing of the children was done by village *cadres* who were selected by and from the village. The Village Development Council managed other village projects including cooperatives to sell agricultural products, assisted with the planting, fertilizing, and harvesting of crops, and ran a village bank, an insurance system that gave assistance in times of crisis such as severe illnesses and incapacitation of village members. This model had been so effective that by March 1985, 41,000 out of 67,000 villages of Indonesia had *Posyandus* [24]. Youthful college seniors are all socialized into the system in that they are required before graduation to spend 3 months in a village and participate in all village activities including those at the *Posyandu*. During one visit the reasearcher made, there were 7 such students, 6 females and one male, one each from the schools of agriculture, education, law, medicine, engineering, and 2 from economics. The students participated in the *Posyandu* activities, consulted informally about these activities with the medical doctor and the nurse midwives, and talked with the head of the village, the village cadre, and the member of the Family Planning Board who were there.

Urban. The 3 urban sites were located in Denpasar, the capital of Bali (Figure 4). The busiest city on the island, it is a typical medium-sized Indonesian commu-

nity [22]. Located in south Badung , the 3 sites had a combined population of 169,033 : Kota had 57,412; Sumerta, 61,471 and Seseetan, 50,150 (Badung Regency Report, 1990).

The Seseetan land area was 46.19 sq. Km., populated by 21,000 households; its density was 2075 per square Km. The average size of a household was 5. Population growth of this area was the highest of the four sites, at 5,36% between 1980 and 1990. Many middle-to-high income families lived in this area. The Sumerta and Kota land area was 27.73 sq. Km. With 25,252 households, and an average of 5 persons per households, it had a density of 1287. The population growth in this area was 2.6 % . The entire regency of Badung had 78 villages on a land area of 542.5 sq. Km. and a total of 133,001 households. Its population density was 1222 per sq. Km., the highest in Bali. The whole island has a land area of 563,286 sq. Km. with a total of 600,616 households; the average density was 493 per sq. Km. in 1990. The growth rate from 1980 to 1990 in the Badung regency was 2.77 % ; Bali itself had a growth rate of 1.18 % (Badung Regency Reports, 1990).

The worker group consisted of 37.7 % of the population; non-workers, comprised of children and youth , the elderly and incapacitated, and so forth, constituted 63.3 % in the regency of Badung. The following was the distribution of occupations in 1990: Agriculture, 28.4 %; manufacture of building materials from gravel and sand, 1.4 %; industry, 6 %; electricity, 8.2 %; construction, 8.7 %; hotel and related businesses, 25.8 %; transport, 4 % insurance and banking, 1.2 % and public service, 24.4 % (Badung Regency Reports, 1990).

The health care of the people in the urban sites we served by a similar complement of personnel as those listed for the rural site. Seseetan had 1,427 chil-

dren under 5 years of age ; Sumerta had 1,891 and Kota had 1,728. The infant mortality rate for south Badung was less than 25/1000. North Badung, however, had 45, mostly from acute respiratory infections; most deliveries were also done at home by traditional births attendants. In contrast, 99 % of deliveries on South Badung, were attended by health center personnel either at home or at the health center. The top 5 causes of child morbidity in this district were: upper respiratory tract infection, 70.3% , diarrhea, 8.5 % , gingivitis, 5.3 % , conjunctivitis, 4.2 % , and periodontal disease plus dental caries, 4.7 % .

Description of the Sample

A total of 200 mothers comprised the sample, 100 from the rural and 100 from the urban areas. Tables 1 and 2 shows the characteristics of the sample. In general, the education of urban mothers was higher than those of rural mothers. For example, 15 % of rural mothers never attended school, compared to only 2% of urban mothers; 25% had less than 6 years of school. Compared to only 6% of urban mothers. Only 14% finished senior high school, compared to 39% of urban mothers. A similar trend was true of the fathers. In both the rural and urban samples, the majority of the mothers were between 20 to 29 years old, whereas, the majority of the fathers were between 30 to 39 years of age. A greater percentage of urban mothers (48%) were not working, compared to rural mothers (31%). A small but equal number of rural and urban mothers worked at jobs that were classified as farm labourer, unskilled, semiskilled or very small business owners (Hollingshead categories 1 to 4). In comparison, 33% and 27% of rural and urban fathers, respectively, worked at jobs in these same categories.

A higher percentage of rural mothers had jobs related to family-owned rice-

fields and buying and selling of farm produce on a medium-to-large scale. In contrast, urban working mothers worked as wage-earners either at government jobs or private industry. On the Hollingshead index, the occupation were classified between 5 to 9. The majority of urban fathers also held jobs that were classified under these categories.

The references children of the sample mothers were between 4 to 6 years of age; the majority were 5 years old, however. Almost all had birthweights greater than 2500 Gms. , had received complete immunizations, and were considered to be developing normally by their mothers. The majority have not had any illnesses. Some had one to two episodes of illness, mostly the common cold with symptoms of fever and cough. Very few had more than 3 episodes of illness. Toothache, dermatitis, and dyspnea were some of the less frequent symptoms mentioned by the mothers. There were about equal numbers of males and females. Rural and urban children were quite similar in these characteristics. There was a larger percentage of first-born children in the urban sample compared to the rural sample (which had more children who were the youngest in ordinal position) , however. Also, the rural sample had slightly more children than the urban sample.

Procedure for Data Collection

The mothers responded to a questionnaire which was read to them aloud by trained interviewers, who then recorded the responses. Interviews were done for two weeks in September and October, 1991 by the interviewers; they were under the direct supervision of a field supervisor, a medical anthropologist. The interview schedule itself was translated and back-translated by a Balinese who had advanced degrees in English and taught English at a state university. All the interviewers were recent graduates from college; 3

were medical doctors and one finished a degree in economics. All the interviewers were males. As medical students, 3 interviewers had spent 3 months in the rural study site; one of them and the field supervisor lived there as well. As a college senior, the fourth interviewer also spent 3 months in a rural area. All spoke *Bahasa Indonesia* as well as the Balinese language, and knew the English language as well. Their interview training consisted of initial discussions of the entire interview schedule and the appropriate ways to ask the questions. Practice interviews were held with mothers of young children and the results were individually discussed with the primary investigators and the field supervisor. The interviews gathered during the first few days were closely monitored and appropriate feedbacks were given to the interviewers.

Various methods were used to ensure the validity and accuracy of the data gathered. Daily checking of the recorded interviews were done by the field supervisors, with discussions of any problems encountered by the interviewers. Frequent meetings and control checks of the recorded data were also done with the primary investigators. At the end of each week, data were coded and entered into code sheets; these were double-checked by each interviewer and verified by the primary investigators. Recorded answers to the open-ended questions were translated by the interviewers into English; all translations were verified by the primary investigators. One of the authors is fluent in both English and *Bahasa Indonesia* . Coding of the responses to the open-ended questions was done by one of the authors using a method that had been used in a similar study of HeadStart mothers in the United States [27].

Each interviewer was monitored on ways of building rapport with individual mothers. For example, about 10-15 minutes were spent in social conversation

before the actual interview began. To assist the mothers to remember the children's past behaviors, the interviewers used traditional landmarks on the Balinese calendar related to ceremonies for children. These included: *Ngotonan* (210 days after birth), *Nyambutan* (105 days after birth), and *Nyalongan* (42 days after birth). The medical anthropologist-field supervisor is to be credited for this method. With respect to the open-ended questions, the mothers were allowed as much time as they needed to describe children's behaviors in great detail. Finally, each mothers participation was specially acknowledged with a gift of "mie instant" (instant noodles), which the mother welcomed. Only the most affluent urban mothers did not need the gift for obvious reasons. The rural mothers were all very hospitable and on one refused to be interviewed. A few urban mothers refused to be interviewed, and some were hesitant to participate but were persuaded when they learned that the interviewees were medical doctors from the state university.

The average length of each interview was one hour. Interviews were held wherever the mothers felt was most convenient for them. In the rural site, mothers were interviewed while they performed household chores such as cooking, washing clothes, etc, depending on the time of the morning or afternoon. Also, most of the mothers who worked for a living did so in close proximity to their homes. In the urban sites, the interviews had to be done at noon or early afternoon hours between 4 and 8 P.M. when the working mothers were home.

Convenience sampling was used, combined with quota sampling of equal numbers of male and female reference children, and an inclusion of the entire range of family economic levels. The inclusion of peri-urban and urban sites helped in this regard. That is, Sese-

had a high concentration of upper income families compared to the central city district (*Kota*).

In both the rural and urban sites, the names of children between 4 to 6 years old were obtained from the community health centers. Additional names were obtained from kindergarten schools in the urban sites. Sampling in the urban homes was easier in that the houses were located closer to each other. In the rural

Results and Discussion

Mother's Developmental Timetables

Table III shows that the rural mother's responses to the question on the age at which the baby begins to see, hear, sit, walk, identify his/her mother, understand voice intonations, understand words, identify pictures of objects, smile, talk, and play with others had much wider age ranges in comparison to urban mothers. This indicated a wide variability in the rural mother's responses. The mean responses further indicated that overall, urban mothers expected earlier beginning ages of performance of these skills than the rural mothers. This was related most likely to the higher educational levels of urban mothers compared the rural mothers.

Similarly, the ages at which the mothers considered it expedient to begin talking to the baby, stop breastfeeding, wean the baby to a cup, introduce solid foods, teach baby not to touch sharp objects, let baby start to feed himself, start toilet training, start telling stories to child, read the first book to child, discipline child, and allow an older brother or sister to take care of a younger sibling showed much wider age ranges reported by rural mothers compared to urban mothers (Table III). The mean responses also indicated earlier performance of the majority of the caregiving actions by urban mothers

site, however, the homes of children registered at the health center were located very far apart. To cut on travel time, when an interviewer was at a particular location early in the day, at the end of the initial interview, the mother was asked if there vicinity. This snowball sampling approach solved the problem of access to subjects. One hundred interviews were completed by the interviewers each week for two weeks.

compared to rural mothers. Two items, "teaching the baby not to touch sharp objects" and "start toilet training" had lower mean for the rural mothers than the urban mothers. However, it is noted that the ranges between the earliest and latest age estimate were so much larger in the rural sample. Furthermore, 18 rural mothers and nor urban mothers reported that they never toilet trained because they had no toilet. Implication of the finding for health teaching about sanitation and hygiene to rural mothers are apparent.

Reading a book for the first time to the child was quite late for both urban and rural mothers (over 4 years old, although a small trend showed and earlier mean age for urban mothers). The mean age to tell a child a story was also earlier for urban mothers. The implication of reading the first book to the child at an early age for the stimulation of language development is to be noted.

Disciplining the child was also done by rural mothers at a later age, indicating greater permissiveness compared to urban mothers. Older siblings were allowed by rural mothers to take care of a younger brother or sister at an older age, compared to the urban sample. This may indicated a more prolonged solely nurturant or protective role of rural mothers than urban mothers. Ajusubel et al.

(1982) had noted that rural life differed from urban life in many ways that affect the personality development of the child [28]. For example, the wider spaces, less density of the population, and fewer environmental hazards affect play patterns of children, and parents give less prohibitory commands.

Of the 24 items of the MMDST/DDST which were passed by more than 50% of the 6-year-old children in the standardization populations (Frankenburg et al. 1970; Williams, 1982), both rural and urban mothers reported that 22 skills were attained before the age of 6 years [8,29]. Only 2 items were thought to be achieved after age 6 by most mothers in both groups. These were "draws a man, 3 parts and 6 parts" (Table V). These results indicated that the mothers expectations were in line with children's actual performances of the skills in the normative studies. Almost all the mothers in the present study estimated that their children's development was normal (Table II).

Table VI shows that one of the 7 categories of psychosocial behaviour studied by Goodnow et al. (1984) and Hess et al. (1980) differentiated urban and rural mothers most clearly [1,2]. A greater percentage of the urban mothers expected their children to acquire verbal assertiveness at a younger age than the rural mothers. This finding is consistent with the urban mothers report that they read books and told stories to their children at an earlier age than rural mothers (see above). The higher educational attainments of urban mothers most likely explains this finding, as well as the fact that more of the urban mothers than the rural mothers worked at jobs that placed a high emphasis on communication skills. These jobs included the white-collar jobs in government and private industry, especially the tourism industry. The special focus on tourism in Bali at the present time and in the future

(Dalton, 1989) may imply continued emphases on gaining and enhancing communication skills by the younger generation, at much earlier ages [22]. This effect was reflected more by the urban than the rural sample. Observations in the capital city of Denpasar, furthermore, indicated that intensive English courses were crowded with young high school graduates and college students, as well as college graduates whose jobs involved daily communication with foreign cultures. Thus, as Roemer (1985) had noted, urbanization offered advantages for cultural interchange, education, and occupation that were less accessible to rural residents [30].

Skills Mothers Taught Children Before Kindergarten

The majority of both the rural and urban mothers reported that they taught the child the skills "know surname, Count 1-10, Know color names, know shape names, and hold pencil easily" before the child started Kindergarten. On the other hand, both groups indicated that they would leave to the school the teaching of the alphabet, writing of own name, and knowing the days of the week (Table IV). Responses to the open-ended question on what the skills mother taught the children before kindergarten showed interesting trends. In addition to skills related to education, mothers reported ones that were classified as artistic, self-care, and family tasks. Artistic skills included singing, drawing, dancing, making toys of paper arranging coconut leaves for offerings, and relating a story. Self-care skills included self dressing, feeding and self bathin, brushing teeth, wearing shoes/sandals; washing dress/shirt/shoes; and folding own clothes. Family or household tasks included sweeping/cleaning the floor, cleaning the yard, washing plate, cutting vegetables for cooking, cleaning the bathroom, fetching water,

getting firewood, feeding the chicken, planting and watering flower garden, and making midrib broom from coconut leaves. Rural and urban mothers both mentioned these skills of singing and drawing than rural mothers. These expect-

Conclusions

The mentioned in the introduction, the results of the study have implications for early childhood education in Bali. For example, mothers can be encouraged to start reading books and telling stories to their children at a younger age to stimulate language development to its fullest potential. At the primary health care level (Posyandus), health care personnel including medical doctors, nurse-midwives, student-trainees, *banjar* leaders, village cadres, and others can be alerted to the importance of this childrearing practice. Mothers who have never attended school can be included in intensive literacy programs Hamzah (1988), so that they CAN read to their children [24]. Perhaps, IN ADDITION to providing toys for mental stimulation which is now being done in the BKP (Bina Keluarga Balita), children's books can also be given to mothers. Members of the household and the extended family who help take care of the children when the mother is busy can also be encouraged to read to young children. This includes older siblings of

tations of the additional skills are specific to Balinese culture. Further analysis of the qualitative data comparing urban and rural mothers of male and female children are forthcoming.

young children. Sibling caregiving is a very common practice in less developed countries [3,8,19/20]. Used children's books cities like Denpasar. Mothers can be giving this information.

Phase II of this research will evaluate the effects of the implementation of a program of training local health care providers how to teach mothers/child-caregivers simple skills that promote the health and development of young children. This developmental approach in the primary health care of children and mothers had been suggested more than ten years ago by Morley (1979) for Africa [7]. The model can be easily replicated in Indonesia and other less developed countries (LDCs). The interventions can be implemented through the existing public health care system, much like the BKP. A careful evaluation of Phase II will appraise not only the impact of the program on mothers and children but also how the current public health care system and personnel facilities or impede the training effort.

Table I. *Sample Characteristics : Parents*

Variables	Categories	Percentages	
		Rural (N=100)	Urban (N=100)
Mothers education	None	15	2
	< Elem. grad	25	6
	Elem. grad	34	23
	Jr. H.S. grad	6	13
	Sr. H.S. grad	14	39
	< Coll. grad	2	9
	College grad	4	8
Fathers education	None	3	0
	< Elem. grad	16	2
	Elem. grad	37	19
	Jr. H.S. grad	10	14
	Sr. H.S. grad	22	39
	< Coll. grad	5	8
	College grad	7	18
Mothers age, yrs	20-29	54	50
	30-39	42	47
	40 +	4	3
Fathers age, yrs	20-29	23	15
	30-39	62	72
	40 +	14	13
Number of parents	1	2	0
	2	98	100
Extended family ?	No	50	48
	Yes	50	52
	1	21	33
	2	20	19
	3 +	9	0
Mothers occupations (Hollings-head)	0 (housewife)	31	48
	1-4	12	11
	5-9	57	41
Fathers occupations	None	3	0
	1-4	33	27
	5-9	64	73

Table II. *Sample Characteristics : Children*

Variables	Categories	Rural (N=100)	Rural (N=100)
Gender	Male	52	49
	Female	48	51
Ordinal position	Oldest	39	58
	Middle	9	5
	Youngest	52	37
Number of siblings	0	10	22
	1	64	55
	2	20	15
	3+	6	7
Age, yrs	4	22	13
	5	56	57
	6	22	30
Birthweight* (Gms)	< 2500	5	3
	> 2500	95	97
No. Immunization	Complete(8)	97	100
	Incomplete	3	0
No. illnesses	0	42	47
	1	30	40
	2	17	10
	3+	11	3
Caregiver estimate of child	Normal	97	98
	Advanced	1	2
	Delayed	2	0
Best age for Preliminary school	4	3	5
	5	80	90
	6	17	15

Table III. *Rural and Urban Mothers Developmental Timetables I*

Behaviour	(Mos.)	Rural Range	Mean	Urban Range	Mean
Age at which baby starts to :					
See		0-6	1.34	0-3	0.79
Hear		0-6	1.56	0-3	0.83
Identify mother		0-12	4.03	0-6	3.72
Think		3-42	8.29	3-36	6.22
Undrestand voice intonations		0-36	7.08	2-8	5.65
Understand words		3-61	9.39	3-12	6.90
Identify pictures of objects		5-48	34.93	12-36	22.28
Smile		0-9	3.98	0-6	3.81
Talk		3-30	7.47	3-36	8.64
Play with fathers		6-36	12.90	6-36	11.90
Sit		2-30	7.25	5-18	7.00
Walk		6-24	12.87	8-24	12.34
Age at which it is expedient to :					
Start talking to the baby		1-42	6.91	3-24	6.53
Stop breast-feeding		6-42	22.48	8-36	21.00
Wean baby to cup		3-30	10.30	4-24	10.54
Introduce solid foods		0-24	4.50	1-8	3.82
Teach baby not to touch sharp objects		6-60	13.63	6-36	16.65
Let baby start to feed self		9-54	19.74	10-48	18.33
Start toilet training		12-72	31.70	10-48	33.24
Start telling stories to child		6-84	42.48	12-60	36.70
Read first book to child		9-72	51.49	18-72	50.51
Allow older sister brother		48-120	74.43	36-120	69.78
To take cere of baby		3-60	16.71	3-48	13.49
Discripline child		6-96	31.36	12.60	24.06

Table IV. *Skills to Teach Before School or Leave to School : Percentages*

Skills	Teach Before Rural	School Urban	Leave to Rural	School Urban
Know surname	82	98	16	2
Count 1-10	90	100	10	0
Know color names	67	80	33	20
Know shape names	55	72	45	28
Hold pencil easily	70	92	30	8
Know alphabet	6	22	94	78
Write own name	3	14	97	86
Know day of the week	30	46	70	54

Table V. *MMDST/DDST Items Attained Before 5 Years or 6 Years : %*

Items	Rural			
	< 6 Yrs.	>6 Yrs.	< 6 Yrs.	> 6 Yrs
<i>Gross Motor</i>				
Balance on 1 foot 5-10. sec	99	1	100	0
Hop on 1 foot	99	1	100	0
Catch bounced ball	78	22	76	24
Run steadily without falling	97	3	100	0
Climb up steps	89	11	91	9
Walk backwards	99	1	100	0
<i>Fine Motor-Adaptive</i>				
Copy +	98	2	100	0
Copy 0	99	1	100	0
Copy -	98	2	100	0
Tower 8 cubes	87	13	95	6
Draw man, 3 parts	40	60	73	27
Draw man, 6 parts	28	72	44	56
<i>Language</i>				
Comprehend cold, tired, hungry	98	2	99	1
Comprehend 3 prepositions	95	5	100	0
Recognize 3 colors	79	21	94	6
Opposite Analogies	43	57	44	56
Give first and last names	90	10	96	4
Composition of object	82	18	98	2
<i>Personal-Social</i>				
Separates from mother easily	89	11	88	12
Plays interactive games	89	11	95	5
Buttons up	86	14	87	13
Washes and dries hands	89	11	97	3
Dresses with supervision	98	2	100	0
Dresses without supervision	71	29	67	33

Table VI. *Rural and Mothers Development Timetables II : %*

Items	Rural			Urban		
	<4 Y.	4-6Y.	>6 Y.	<4 Y.	4-6Y.	>6 Y.
<i>A. EMOTIONAL MATURITY</i>						
Does not cry easily	58	41	1	44	55	1
Can get over anger by self	4	70	26	4	83	13
Stand disappointment, not cry	3	61	36	5	63	32
Does not use baby talk	65	9	26	74	23	3
<i>B. COMPLIANCE</i>						
Come answer when called	92	8	0	99	1	0
Stop misbehaving when told	51	45	4	49	49	2
Give up play help mother	25	47	28	19	66	15
<i>C. POLITENESS</i>						
Great family courteously	13	54	33	13	72	15
Use polite forms to adults	4	49	47	2	52	46
<i>D. INDEPENDENCE</i>						
Stay home alone, 1 hour or so	9	20	71	0	26	74
Take care of own clothes	5	43	52	1	52	47
Take care of younger sibs	2	61	34	1	51	48
Eat without help	45	45	10	46	47	7
Does regular household tasks	0	23	77	0	16	84
Can entertain self alone	56	25	19	51	32	17
Play outside, no supervision	52	34	14	46	41	13
<i>E. SOCIAL SKILLS</i>						
Wait for turn in games	30	56	14	25	68	7
Share toys with other chn	32	59	9	25	68	7
Sympathetic to feelings chn	38	32	30	43	25	32
Solve disagreement, no fight	2	49	49	5	55	40
Get own way, persuade friend	4	32	64	5	45	50
Take initiative, play w/others	11	61	28	9	77	14
<i>F. VERBAL ASSERTIENESS</i>						
Answers a question clearly	13	61	26	43	35	22
State preference when asked	26	64	10	38	55	7
Ask for explanation, doubt	3	37	60	19	40	41
Can explain why think so	0	7	93	0	17	83
Stand up For own rights	31	21	48	49	23	28
<i>G. OTHERS</i>						
Use pocket knife, no supery	29	19	52	22	24	54
Wipe feet, enter house	19	65	16	28	64	8
Disagree without biting	6	51	43	3	62	35
Know how get home	31	54	15	14	75	11
Resolve quarrels, no adults	1	16	83	0	27	73

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