CAREGIVERS' KNOWLEDGE REGARDING EARLY CHILDHOOD DEVELOPMENT IN SOSHANGUWE, SOUTH AFRICA

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ABSTRACT

A child's caregiver holds the key for successful screening by providing the health professional with accurate information. After delivery of a baby, every mother receives a growth chart that provides a guideline to normal development. Caregivers' competency might be influenced by their macro-social and economic environment.

The purpose of the study was to determine caregivers' knowledge regarding early childhood development in a poverty stricken area of Soshanguve. If a lack of knowledge should be identified and be addressed, caregivers' enhanced knowledge of childhood development could enhance early detection and effective treatment of developmental problems. This might help to enhance these children's physical and emotional and intellectual accomplishments throughout their lives.

The objectives were to explore caregivers' knowledge of the Road to Health Chart, their understanding of early childhood development and their perceptions regarding the treatment of developmental problems. A quantitative survey was conducted. Self-reported data were gathered by means of structured interviews.

Although the respondents had previously received education on the Road to Health Charts, they lacked knowledge regarding development categories, especially language, speech and cognitive development and they expected health services to play a significant role in the treatment of developmental problems.

Programmes to provide caregivers with knowledge regarding early childhood development need to be developed and implemented. Early diagnoses of and effective interventions for childhood

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developmental problems could help children to reach their developmental milestones and to experience fewer problems throughout life.

KEYWORDS: caregivers' knowledge, childcare in South Africa, early childhood development, poverty-stricken environment, Road to Health Chart

INTRODUCTION AND BACKGROUND INFORMATION

> *"The child's early experiences ... create the base for all subsequent learning. Strong early childhood foundations, including good health, nutrition and a nurturing environment can help ensure a smooth transition to primary school, a better chance of completing basic education, and a route out of poverty and disadvantage." (UNESCO, 2007:2).*

The Millennium Development Goals (MDGs) were adopted at the United Nations Millennium Summit in 2000 as a framework for reducing poverty and ensuring completion of primary school education (UNICEF, 2008:2). Countries were encouraged to commit to their children's future through early childhood development (ECD) programmes. The South African government's plan for ECD aims to provide health, as well as physical, emotional, psychosocial and cognitive development services to the young child (UNICEF, 2005:12). South African early childhood development programmes include an immunisation schedule enabling South African registered nurses to have regular contact with children younger than six (Kibel & Wagstaff, 2001:171). Registered nurses should use every opportunity to monitor children's development (Hellbrügge & Von Wimpffen, 2002:19; Kibel & Wagstaff, 2001:165).

Every mother receives a Road to Health Chart (RtHC) when she is discharged from the healthcare institution after the delivery of her baby. The RtHC provides caregivers with information about normal ECD, which is a continuous and cumulative process depending on the quality of child-caregiver interaction. Neural pathways, like road maps, develop after birth and allow information to be transferred through the brain. A three-year-old child has twice the number of neural pathways that an adult has (UNICEF, 2007:1). According to Hellbrügge and Von Wimpffen (2002:19), 90% of the brain's development (size and functions) is completed by the age of six years. Scientists agree that brain development and subsequent learning, behaviour and health are mainly influenced from conception to the age of six years (Comley & Mousmanis, 2003:3). The process of brain development includes orderly, successive, progressive stages that accommodate individual variations. Any deviance during a specific sub-stage might be transferred as a burden to the next developmental stage (World Bank, 2004:8).

In the 'brain development' academic discourse there is the classic debate about nature versus nurture. However, the brain development theory stipulates that both nature and nurture play a role where the child's environment can alter the function of the brain

(NCCRRA, 2010:1). The young child's development depends on the child-caregiver interaction (Kibel et al., 2008:39) which is influenced by the caregiver's competency to provide care. This competency is influenced by the macro social, economic and cultural environments, as well as the social roles and relationships within the household. Children's relationships with their caregivers are highly vulnerable to stress associated with poverty (WHO, 2004:46).

Poverty in this study is seen in a broader perspective than merely the extent of low income. Poverty is described by Statistics South Africa (2000:54) as "the denial of opportunities and choices most basic to human development to lead a long, healthy, creative life and to enjoy a decent standard of living, freedom, dignity, self-esteem and respect from others." Poverty could thus result in compromised child development and restricted human potential with cumulative negative impacts on early childhood development (Australia, 2009:1–2).

Caregivers can make valuable contributions to the desired developmental outcomes of children by the timely identification of problems and by providing registered nurses with accurate information. Hellbrügge and Von Wimpffen (2002:28) emphasise that the caregiver is the person who holds the key to early and successful intervention and is the best person to provide the health professional with valuable information about their day-to-day experiences with the child. The caregiver, because of the time spent with the child, can recognise whether the child has developmental problems provided he/she has the required knowledge about child development.

PROBLEM STATEMENT

Early childhood is a time of extraordinary development, but also of vulnerability. Poverty experienced by the young child could have cumulative negative impacts on ECD. The caregiver plays a key role in identifying and diagnosing developmental problems, provided he/she has the necessary knowledge regarding ECD. The researcher is a registered nurse who has been involved in Soshanguve Extension 12 and 13, a settlement 45 km outside Pretoria, since 2005. During this period it was evident that several children had ECD problems but their caregivers did not voice any ECD concerns. A community assessment found that 75% of the population lived below the international poverty level of two US dollars (R18) per capita per day (Maree & Ferns, 2008:27). Before any intervention could be planned to address the developmental problems, it was essential to determine the caregivers' knowledge regarding early childhood development.

RESEARCH QUESTION

How knowledgeable are caregivers regarding ECD in children younger than six years living in Soshanguve Extensions 12 and 13?

PURPOSE AND OBJECTIVES OF THE STUDY

The purpose of the study was to determine the knowledge of caregivers regarding early childhood development in children younger than six years living in poverty. The objectives were to explore:

- caregivers' previous education regarding the RtHC;
- caregivers' understanding of the children's physical growth and milestone development;
- caregivers' perceptions regarding the treatment of development problems.

DEFINITIONS OF KEY CONCEPTS

A **caregiver** in this study is a person who takes care of the child and is the primary source of support and stimulation whether related or not, free of charge (Swanepoel, 2003:23). Caregivers that receive compensation for the caring of a child were excluded from the study as daycare managers and pre-school teachers could have formal training regarding early childhood development.

Early childhood development refers to the process during which children go through changes in skills development (developmental milestones) during predictable time periods (Toronto Public Health, 2008:10).

Poverty is the denial of opportunities and choices most basic to human development that could lead to a long, healthy, creative life and to enjoy a decent standard of living, freedom, dignity, self-esteem and respect from others (Statistics South Africa, 2000:54).

The Road to Health Chart (RtHC) is a home-based record of a child's health and development and provides the caregiver with a normal development guideline. The chart is based on standardised World Health Organization (WHO) growth charts (Kibel et al., 2008:107).

RESEARCH METHOD AND DESIGN

The research strategy for this study was exploratory because no information was available on the status of caregivers' knowledge regarding early childhood development in Soshanguve Extensions 12 and 13.

Research design

A quantitative survey was used to gain information about the caregivers' knowledge regarding early childhood development in this poor community. Portney and Watkins (2009:18) state that quantitative research involves the measurement of outcomes using numerical data under standardised conditions. Survey research, according to Fox and Bayat (2007:86), involves collecting data by using a set of pre-formulated questions in a pre-determined sequence in a structured interview schedule, to a sample of individuals selected so as to be representative of a given population. Data were obtained through structured personal interviews in which the researcher met the respondents to ask them a set of pre-determined questions in a specific sequence during July–September 2010.

Research setting

The study was conducted at a clinic in Soshanguve Extensions 12 and 13. Soshanguve forms part of the greater Tshwane Metropolitan Municipality and is a semi-formal settlement 45 km north of Pretoria. The total number of people living in these extensions is unknown as informal houses are constantly being built.

Research population and sampling

The target population for this study comprised all caregivers of children under the age of six years attending the clinic, from approval of the study by the TUT Research Ethics Committee (July 2010) until the advised sample size of 71 was reached (September 2010). All willing caregivers were included; if not the biological parent, the caregiver had to be 18 years or older. Prior to data collection, the purpose of the study was explained and informed consent was obtained.

Consecutive sampling was used. According to Portney and Watkins (2009:154), this method involves recruiting all patients who meet the inclusion criteria as they become available, within a defined time period.

Data collection and analysis

Self-reported data were gathered by means of structured interviews. Portney and Watkins (2009:327) identified self reports as the only direct way to obtain information for variables such as perceptions, fears, motivations and attitudes. The interviews consisted of a standardised set of questions. In this way, all respondents were exposed to the same questions in the same order (Portney & Watkins, 2009:326).

The structured interview had 18 questions, closed and open ended. The Toronto Red Flags Guide on Development (Toronto Public Health, 2008:16-58) was used as a guide

for questions regarding early childhood development. As all children do not develop at the same rate, and to accommodate individual caregivers' own experiences, a margin of error of two months on all questions (regarding development) was allowed. The structured interview schedule was pre-tested by using the first five caregivers of children under the age of six years, visiting the clinic, July to September 2010. The interviews took 10–20 minutes to complete, and was conducted in English but an interpreter was used when necessary. Data were analysed with Stata11 using descriptive statistics (n=71).

Validity and reliability

Polit and Beck (2010: 571) define validity as "a quality criterion referring to the degree to which inferences made in a study are accurate and well-founded; in measurement, the degree to which an instrument measures what it is intended to measure" and reliability as "the degree of consistency or dependability with which an instrument measures an attribute." To ensure validity and reliability the following measures presented in Table 1 were applied to prevent or minimise error, adapted from Bothma et al. (2010:174–178).

To provide proof of the reliability of an instrument three aspects are of importance: stability, equivalence and homogeneity (Burns and Grove, quoted by Bothma et al., 2010: 177).

- Stability was ensured by obtaining data under standardised conditions by one researcher.
- Equivalence was no threat to reliability, as all data were obtained by one researcher.
- Homogeneity was ensured as the study only included caregivers of children younger than six living in Soshanguve Extension12 and 13 attending the clinic during July–September 2010.

Table 1: Threats to validity and measures taken to minimise errors

INTERNAL THREATS		
	Source of error	**Measures to minimise errors**
Research design		
Internal validity is the degree to which the outcome of the study can be credited to the result of the study.	Selection	The research design was approved by the Departmental Research and Innovation Committee (DRIC), Faculty of Science Research and Innovation Committee (FRIC) and the Research Ethics Committee of Tshwane University of Technology. A TUT statistician recommended a sample size of at least 71 respondents.
Measurement		

Content validity	Vague definitions or lack of theoretical validity Respondents	Over a period of 12 months a literature study was conducted with the purpose of gathering relevant information, so a foundation of knowledge was developed to form the base of the research. The structured interview schedule was pre-tested to determine how long it would take to complete and to assess the understanding of the questions.
Data gathering		
Prevent unreliable and biased measurement	Researcher effect Interviewer bias	Data were collected by conducting structured interviews, ensuring structural coherence throughout the interviews.
Data analysis		
Statistical conclusion or inferential validity	Low statistical power Fishing and error rate problem Low reliability of measures	The sample size comprised 71 caregivers as recommended. The Toronto Red Flags Guide on development (Toronto Public Health, 2008:16-58) was utilised to guide the development of the structured interview schedule. An error margin of two months was allowed on all questions regarding development, as advised by an occupational therapist. The statistical software package utilised to analyse the data was Stata 11.
EXTERNAL VALIDITY		
The degree to which the results can be generalised to other populations	Rosenthal effect (researcher influence on respondents)	Rosenthal effect minimised by using a structured interview schedule.

ETHICAL CONSIDERATIONS

The study was approved by the TUT Research Ethics Committee. No harm was intended; and efforts were made to minimise any emotional discomfort experienced by the caregivers. Informed consent was obtained from each respondent, including the participant's right to withdraw at any time without affecting their relationship with the health team. Confidentiality and anonymity were ensured by protecting the participants' identity and privacy so that that no association between the data and the participant could be made.

RESEARCH FINDINGS

The following data were determined by the structured interview:

- demographic data;
- previous education regarding the RtHC;
- knowledge regarding the child's physical growth;
- knowledge regarding the child's milestone development;
- perceptions regarding the treatment of developmental problems; and
- any other concerns regarding the child (open-ended question).

The research results will be presented accordingly.

Demographic data

The 71 respondents represented eight different cultural groups, with Northern Sotho (29, 6%; n=21) being the largest. The respondents were mostly (53.5 %; n=38) single and 94.4% (n=67) female, with most of the respondents (71.8%; n=51) in the 20–35 year age group. Out of the 71 respondents, 80.3% (n=57) were unemployed, and 95.8% (n=68) had passed Grade 8.

Previous education regarding the RtHC

As many as 53.5% (n=38) of the 71 respondents had never received any education regarding the RtHC. The remaining 46.5% (n=33) had previous education regarding the importance and interpretation of the RtHC. The source of education was the professional nurse in the maternity ward (36.6%; n=26), the professional nurse at the clinic (54.9%; n=39), any other health worker (2.8%; n=2), or a friend or family member (5.6%; n=4).

Knowledge regarding the child's physical growth

Each respondent was asked whether the child had previously experienced any weight problems. A third (32.4%; n=23) had previously been diagnosed with an underweight problem, 39.4% (n=28) of the underweight children were identified by the caregiver while the other 60.6% (n=43) were identified by a health professional.

Knowledge regarding the child's milestone development

The purpose of the questions was to explore the knowledge of each caregiver regarding the child's milestone development. The questions were grouped under the following categories of development: gross motor, fine motor and visual perception, cognitive, language and speech, social and emotional.

Three questions were asked in each area, except social and emotional development where four questions were asked. The respondents were not given options and answers

could only be correct or incorrect, considering the error margin of two months. If a respondent did not understand the question, the researcher indicated it as such and it was likewise reflected in analysed data.

Table 2: Summary of caregivers' knowledge about early childhood development

Area of development	Incorrect		Correct		Unknown		Total	
Gross Motor Development	n	%	n	%	n	%	n	%
When should a baby be able to roll over? (6 months)	13	18.3	56	78.9	2	2.8	71	100
When should a baby be able to sit without support? (8 months)	43	60.6	28	39.4	0	0.0	71	100
When should a baby be able to walk without holding on? (16 months)	28	39.4	43	60.6	0	0.0	71	100
Average knowledge of child's gross motor development	28	39.4	42.3	59.6	0.7	0.9	71	100
Fine Motor and Visual Development								
When should a baby be able to hold something in his/her hand (like a rattle)? (3 months)	28	39.4	41	57.8	2	2.8	71	100
When should a child be able to dress and undress without help? (60 months)	41	57.8	23	32.4	7	9.9	71	100
When should a baby be able to turn a single page of a book? (36 months)	52	73.2	17	23.9	2	2.8	71	100
Average knowledge of child's fine motor and visual development	40.3	56.8	27	38.0	3	5.2	71	100
Audio and Speech Development								
When should a baby respond to "no"? (12 months)	36	50.7	34	47.9	1	1.4	71	100

When should a baby point to body parts when asked? (18 months)		53	74.7	17	23.9	1	1.4	71	100
When should a child speak clearly enough for strangers to understand? (36 months)		46	64.8	20	28.2	5	7.0	71	100
Average knowledge of child's language development		45	63.4	23.7	33.3	2	3.3	71	100
Cognitive Development									
When should a baby search for a hidden object? (12 months)		48	67.6	20	28.2	3	4.2	71	100
When should a baby know his/her own name? (12 months)		35	49.3	36	50.7	0	0.0	71	100
When should a child begin to sort objects by shapes and colours? (24 months)		52	73.2	14	19.7	5	7.0	71	100
Average knowledge of child's cognitive development		45	63.4	23.3	32.9	2.7	3.8	71	100
Social and Emotional Development									
When should a baby smile? (3 months)		15	21.1	56	78.9	0	0.00	71	100
When should a baby laugh out loud in playful situations? (4 months)		20	28.2	50	70.4	1	1.4	71	100
When should a child be toilet trained? (48 months)		59	83.1	7	9.9	5	7.0	71	100
When should a child know his/her gender? (36 months)		48	67.6	19	26	4	5.6	71	100
Average knowledge of child's social and emotional development		35.5	50.0	33	46.5	2.5	3.5	71	100

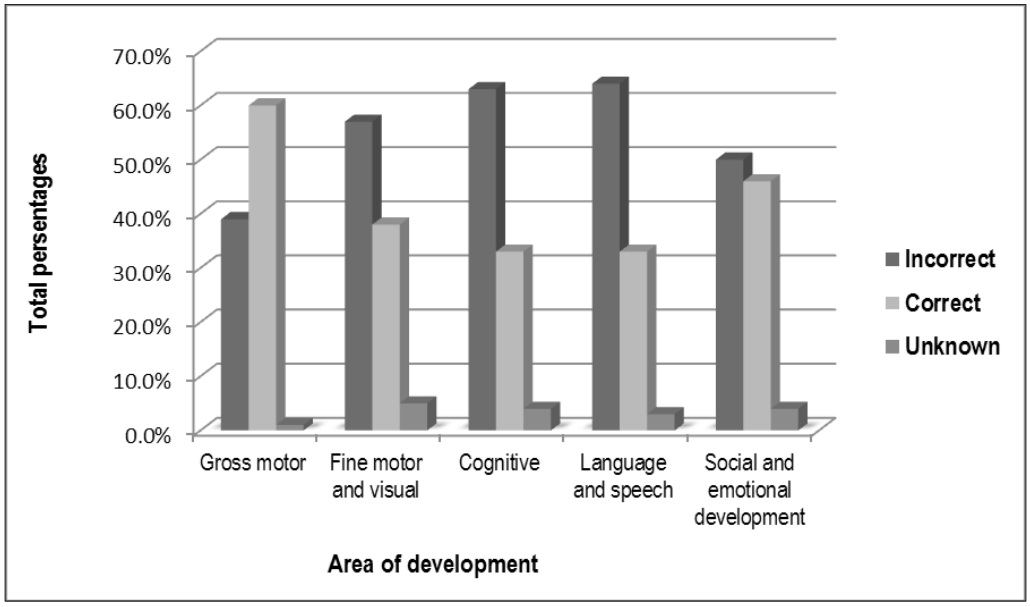

Figure 1: Caregivers' knowledge regarding early childhood development (N=71)

A comparison between the total percentages answered correctly, incorrectly or incomprehensibly in terms of the respondents' knowledge regarding early childhood development is portrayed in Figure 1.

There were knowledge deficits in all development categories, but the highest deficits were in the domains of language and speech development and also in cognitive development.

Perception regarding the treatment of developmental problems

The purpose of these questions was included to verify the participants' attitude regarding the "when" and "who" in treatment of developmental problems.

Most caregivers (88.7%; n=63) indicated that developmental problems should be treated immediately. The respondents' expectations as to who should be responsible to manage developmental problems were probed, and 42.3% (n=30) of the respondents were of the opinion that developmental problems should be addressed by a combination of the caregiver, health services and the educational system, 35.2% (n=25) were of the opinion that the caregiver was the sole responsible party, 21.1% (n=15) said the health services and 1.4% (n=1) answered the education system as visualised in Figure 2.

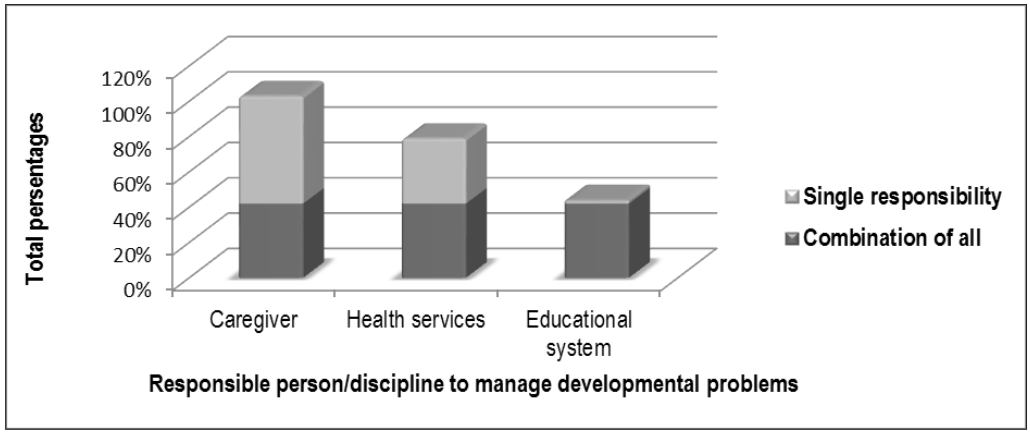

Figure 2: The respondents' expectations as to who should be responsible to manage developmental problems

Caregivers expect health services to play a significant role (63.4%; n=45) in managing early childhood development problems. The majority (93%; n=66) of the respondents indicated that they were willing to participate in home programmes to enable the child to develop to the best of his/her abilities.

Concerns regarding the child

The final open-ended question was included to determine if the caregiver had any other concerns regarding the child's development that was not included in the structured interview schedule or not relevant to the study. The responses were grouped: insufficient funds to afford pre-school education (62.0%; n=44), crime (50.7%; n=36), alcohol and drug abuse (47.9%; n=34) and the lack of safe playing areas in the community (32.4%; n=23) were the main concerns voiced in the open-ended question.

Summary of findings

The majority of the respondents were female, single, unemployed and literate. Nearly half of the respondents had previous education regarding the RtHC's importance. The professional nurse was the main provider of this knowledge, whether in the maternity ward or the primary health care clinic. The primary source of diagnosing underweight children was a health professional. The research findings indicated that the respondents possessed inadequate knowledge about the topics of visual and fine motor, language and speech, and cognitive development. They had average knowledge regarding social and emotional development and adequate knowledge concerning gross motor development.

Most respondents stated that developmental problems should be treated immediately and nearly two-thirds felt that the health services should play a significant role in this treatment, whether as exclusively responsible contributors or in union with the parent and the educational system. The majority of respondents were willing to participate in a home-based programme to develop the child to the best of his/her abilities.

DISCUSSION OF RESEARCH FINDINGS

A good start in life is critical for the physical, intellectual and emotional development of every individual, and poverty in early childhood can prove to be a handicap for life. Poverty denies children their rights to basic education, primary healthcare, adequate nutrition and safe water and nutrition. Poor children are likely to pass poverty onto their children when they grow up, perpetuating the poverty cycle (UNICEF, 2007:4). Poverty affects child development through the child's relationship with their caregivers. As caregivers' competency to provide quality childcare is not only influenced by their low income, the following identified poverty indicators can further negatively impact on their competency:

- Female-headed households: the majority of the respondents were female and single.
- Unemployment: 80% of caregivers were unemployed.
- Number of children in the household: 63% had two or more children.
- Inadequate nutrition: 32% had a child who had previously been treated for an underweight problem.
- Unsafe neighbourhood: crime, alcohol and drug abuse, lack of safe playing areas in the community and insufficient funds to afford pre-school education were the main concerns voiced in the open-ended question.

A government Child Support Grant is one of South Africa's major contributions to reducing child poverty. In 2009, nine million children under the age of 15 years received the child support grant (UNICEF South Africa, 2009:5). Primary healthcare is free for pregnant women and children younger than six (UNICEF South Africa, 2009:5). The global youth literacy rate has increased to 89% (United Nations, 2010:43). This increased literacy rate is reflected in the data as 95.8% of the respondents had passed Grade 8 and 7.4% of these respondents had formal education after school.

Caregivers' knowledge about the development of their young children has important implications. Medical professionals rely on caregivers' knowledge about the health and development of their children for decision making, interventions and referrals. Programmes to improve the health and development of children require accurate information on what caregivers know about and provide for their children so that the extent of interventions can be planned.

The findings reflected that caregivers had knowledge deficits in the domains of visual and fine motor development, language and speech development, and cognitive development. Although the caregivers had knowledge deficits regarding normal early childhood development, the majority of the respondents stated that developmental problems should be treated immediately. Early detection of developmental problems is one of the important tasks of health professionals providing primary care to the young child. Early treatment can reverse the effects of deprivation and reduce the need for remedial services to address developmental problems in later life (UNICEF, 2007:1, Toronto Public Health, 2008:13). Approximately two-thirds of the respondents felt that health services should play a significant role in the treatment of developmental problems, as exclusively responsible contributors or in combination with the parent and the educational system.

Nurses are the main healthcare providers and comprise 86% of the total health personnel workforce in South Africa (Kibel et al., 2008:281). The South African registered nurse, providing primary healthcare, is the professional with the most frequent access to the young child through the opportunities provided by the immunisation schedule (Kibel & Wagstaff, 2001:171). In order to meet the expectations of the caregivers regarding the significant role in the treatment of developmental problems, the professional nurse should use every opportunity to monitor the child's health, including growth monitoring and developmental screening.

LIMITATIONS OF THE STUDY

Limitations that were identified during the course of the study:

- Despite pre-testing the structured interview schedule some caregivers could not understand some questions.
- Although the researcher gathered information about the caregivers' health education on the RtHC, their understanding of the chart was not probed.

CONCLUSIONS

Young children need quality childcare to develop their innate potential and to prepare for formal education and long-term success. Quality care provides nurturing relationships, a mentally stimulating environment and basic health and safety (UNICEF, 2007:17).

The South African registered nurse, as the professional with the most frequent access to the child, in partnership with the caregivers, should use every opportunity to monitor the child's health, and plan and implement interventions.

RECOMMENDATIONS

Nurses should develop programmes to provide caregivers with knowledge regarding early childhood development and the RtHC chart.

Policy-makers should include the importance of the caregiver's role in all nurse training curricula.

Nursing research should focus on the:

- effect of the environment on the caregiver's knowledge regarding early childhood development;
- reason for knowledge deficits if the majority of caregivers had passed Grade 8;
- interventions through research studies to develop and implement knowledge providing programmes to improve caregivers' knowledge about early childhood development.

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