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Social and dietary practices of Soweto families who protect agains overt malnutrition in their children

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The mothers of 4% of Cases and 2% of Controls were pregnant at the time of the interview and 6% of Case mothers and 0% of Control mothers had given birth after the child in question (i.e. these Case children had younger siblings).

The mothers' mean age at each pregnancy was not significantly different, as described in Table 16.

Table 16. Age of Mothers at Each Pregnancy

PREGNANCY NUMBER	CASE Mean Age			CONTROL Mean Age			t Value
	$\bar{x}$	Sx	N	$\bar{x}$	Sx	N	
1	19,5	3,7	50	19,7	3,5	50	-1,16
2	23,2	4,2	35	23,5	3,8	36	-0,31
3	25,8	4,2	19	26,5	4,8	15	-0,45
4	30,0	4,7	13	31,3	8,3	6	-0,44
5	34,3	6,7	8	23,0	2,0	4	–[1]
6	33,7	0,6	3	27,0	3,7	3	–
7	34,0	1,4	2	26,7	2,5	3	–
8	36,0	–	1	29,0	2,6	3	–
9	38,0	–	1	33,0	3,5	3	–
10	39,0	–	1	31,0	–	1	–

N = 100 (50 Cases and 50 Controls)
[1] N is too small to calculate a t value.

The only significant difference between the Case and Control mothers' reproductive histories was that significantly more Cases (78%) than Controls (64%, $p < 0,05$) had only one sexual partner who fathered their children, whereas 22% of Cases and significantly more Controls (36%, $p < 0,05$) had two or more sexual partners by whom they fell pregnant.

There was a leaning towards significance where fewer Case (38%) than Control (49%) mothers planned to have the child in question (i.e. they stopped using a contraceptive).

5.3.7 Attitude towards Child

There was a leaning towards significance where fewer Case (40%) than Control (60%) mothers wanted the pregnancy that gave birth to the child in question.

Fewer Case than Control mothers openly expressed positive and negative affect (ie. were demonstrative of their feelings) towards the child: 42% of Cases and 54% of Controls said that they hugged, kissed and held their child frequently. This difference approached significance. A similar percentage of Cases (60%) and Controls (56%) believed that too much affection or tenderness could harm or weaken a child. Exactly 52% of mothers in each group reported that they often felt angry with the child, yet significantly fewer Cases (44%) than Controls (66%, $p < 0,05$) claimed that they expressed this anger to the child e.g. "When I am angry with my child, I let him/her know it". Mothers who felt that their child was somewhat of a disappointment to them (eg. was a boy instead of a girl, was not clever enough, did not smile enough, etc.) constituted 28% of Cases and 24% of Controls.

In terms of non-punitive modes of child-rearing, as opposed to authoritarian control, significantly fewer Cases (54%) than Controls (72%, $p < 0,05$) believed that scolding and criticism made their child improve. Over half of the mothers in the sample (60% of Cases and 66% of Controls) thought it important for children under three years old to control their feelings at all times. Extra privileges when the child behaved well were given by 38% of Case and 42% of Control mothers.

Most mothers (98% of Cases and all Controls) believed it was unwise to allow children under three years old to be left alone, i.e. to play a lot by themselves, without adult supervision. Nearly all mothers (98% of Cases and all Controls) ensured that they usually knew where their child was and what the child was doing.

Except for 2% of Case mothers, the entire sample of mothers stated that they found some of their greatest satisfaction in their child. These mothers thus gained some enjoyment from their maternal role.

5.3.8 Drinking Habits

Significantly more Case mothers (28% compared to 14% of Control mothers, $p < 0,05$) drank alcohol. Details pertaining to the mothers' drinking habits were sought, but the answers to such questions were too diverse and when grouped, the numbers in each category were too small to analyse statistically. Answers to questions on the quantity of alcohol that the mothers consumed varied from "non-specific amounts", "1 - 3 glasses of wine", "1 - 3 cans of beer" to "a lot", "until I'm drunk".

Mothers' responses to enquiries on the frequency of her alcohol intake included: "non-specified frequency", "occasionally", "when available", "on weekends only", "2 - 3 times a week", and "daily".

Non-verbal clues as to whether or not the mothers may have had a drinking problem were observed (see section 1.5, Description of Terms). The interviewer noted the mothers' reactions to the questions on alcohol (especially intense denial); whether the mothers' fingers and tongue shook; whether their speech was slurred; whether their breath smelt of alcohol; their personal cleanliness and overall appearance, and if there were empty beer or spirit bottles lying around (commenting on if the family ran a shebeen).

There was no significant difference between the two groups with regard to any of these variables. Only one of the Case mothers and none of the Control mothers appeared to have had a drinking problem. Therefore, although more mothers in the Case group drank alcohol, there was no indication that these mothers had drinking problems.

5.3.9 Social Support

The mothers' social ties, interpersonal relationships and emotional support were examined by means of the family type to which she belonged; the frequency of her contact with the child's father or another male partner; and her attendance of voluntary associations and involvement in group leisure activities.

The mother's family type and the frequency of her contact with the child's father or another male partner have been described in section 5.1.2, the main features of which can be summarised as follows:

Case mothers appeared more likely to be in a family with a broken structure (i.e. neither nuclear nor extended in composition), and significantly fewer Case mothers lived in the same households as Case fathers. In contrast, Control mothers often appeared to come from a family that was somewhat nuclear in structure and significantly more Control mothers lived in the same households as Control fathers. The quality of the relationship between mothers and fathers was not assessed and very few mothers in either group were living with a male partner other than the child's father. In terms of marriage, which would indicate some level of commitment to the relationship, under half of the mothers in each group were or had been married (see section 5.1.2 for details of these findings).

The different family types, outlined above, imply different ways in which the family does or does not fulfil its psychosocial task of supporting its members. Thus, the family type seems interlinked with the mother's social relationships in the home, as will be discussed in chapter 6.

The mothers' attendance of voluntary associations (i.e. groups and churches) and involvement in group leisure activities (i.e. group related hobbies), were investigated as measures for gaining an indication of the mothers' sense of belonging, emotional support, and interchange of knowledge and stimulation, outside the arenas of home and work.

Significantly fewer Cases (16%) than Controls (30%, $p < 0,05$) belonged to a group which met regularly e.g. burial societies, stockvels and women's clubs. A similar percentage of Case (82%) and Control (86%) mothers belonged to a church. However, with regard to the type of church, there was a leaning towards significance where more Cases (22%) than Controls (14%) belonged to Roman Catholic churches rather than Non- Catholic churches. Also, significantly fewer Cases (28%) than Controls (48%, $p < 0,05$) attended church services regularly (i.e. monthly or more often). Furthermore, significantly fewer Cases (26%) than Controls (48%, $p < 0,05$) participated in group-related hobbies or interests such as spectator sports, sporting activities, music and arts and crafts.

Finally, significantly more Cases (82% compared to 68% of Controls, $p < 0,05$) spoke to or consulted female relatives when they had problems with the child, whereas a leaning towards significantly fewer Cases (32% as opposed to 42% of Controls) spoke to or consulted male relatives, friends or acquaintances. Some Cases (8%) and Controls (2%) reported that they did not speak to or consult anyone at all.

The social support systems of Case mothers were largely restricted to female relatives, compared to Control mothers whose social support systems included male relatives and groups within the community.

5.4 Nutritional Practices

5.4.1 Dietary Patterns

Dietary patterns of the household and of the child were investigated by the recording of habitual food intakes. An attempt was made to calculate the exact nutrient intake of each child by means of the 24 hour dietary recall. Such detailed nutrient analysis was, however, not possible as 95% of mothers could not provide this information (see section 4.3, The Research Tool). Nevertheless, as Finklehor (1978:22) states: "calculation of the exact nutrient intake of each child is not of major concern ... when the objective of the research is to identify dietary patterns that may contribute to protein calorie malnutrition".
The dietary patterns of the household and of the child are tabled overleaf:

Table 17. Dietary Patterns of the Household

DIETARY PATTERNS OF HOUSEHOLD [1]	CASE %	CONTROL %	z SCORE
PROTEIN			
Meat, Chicken, Fish – daily	34	60	-2,60**
Eggs – at least monthly	72	84	-1,45v
Peanut Butter – daily	26	26	0
Milk – daily	66	66	0
Beans, lentils – at least monthly	20	38	-1,98*
KILOJOULES i.e. carbonydrates, fats, sugars, "junk foods"			
Brown Bread – daily	94	90	0,74
White Bread – daily	84	88	-0,58
Mealie Meal, Samp – daily	88	76	1,56v
Breakfast Cereals, Oatmeal – daily	2	10	–[2]
Rice, Potatoes – at least monthly	98	98	–
Margarine, Butter, Oil – daily	74	90	-2,08*
Sugar – daily	98	98	–
Jam – daily	30	28	0,22
Sweets, Crisps – at least monthly	24	28	-0,46
Coke and other soft drinks – at least monthly	48	68	-2,03*
VEGETABLES			
Green Vegetables – at least monthly	98	92	–
Other Vegetables – at least monthly (excluding rice and potatoes)	96	92	–
FRUIT – at least monthly	64	78	-1,54v
TEA AND COFFEE – daily	98	96	–

N = 100 Households (50 Cases and 50 Controls); N > 100 people

** $p < 0,01$

* $p < 0,05$

v approaching significance

[1] Food intake has been presented according to the frequency that the particular food was consumed ("daily" or "at least monthly").

[2] It is inappropriate to calculate z scores on highly skewed distributions with a sample size of only 50 subjects in each group.

Table 18. Selected Dietary Patterns of Child

DIETARY PATTERNS OF CHILD i.e. food consumed daily, or every second day	CASE %	CONTROL %	z SCORE
PROTEIN			
Meat, Chicken, Fish	18	38	-2,30*
Eggs	30	34	-0,43
Peanut Butter	24	22	0,24
Milk	74	90	-2,08*
Beans, lentils	–	–	–[1]
KILOJOULES i.e. carbohydrates, fats, sugars, "junk foods"			
Brown Bread	56	68	-1,24[v]
White Bread	4	4	–
Mealie Meal, Samp	60	68	-0,83
Breakfast Cereals, Oatmeal	16	14	0,28
Rice, Potatoes	6	14	-0,90
Margarine, Butter, Oil	28	44	-1,67*
Sugar	56	64	-0,82
Jam	8	14	-0,96
Sweets, Crisps	2	10	–
Coke and other soft drinks	2	14	–
VEGETABLES			
Green Vegetables	8	8	–
Other Vegetables (excluding rice and potatoes)	6	8	–
FRUIT	12	38	-3,00**
TEA AND COFFEE	36	52	-1,67*

N = 100 Children (50 Cases and 50 Controls)

** $p < 0,01$

* $p < 0,05$

[v] approaching significance

[1] It is inappropriate to calculate z scores on highly skewed distributions, with a sample size of only 50 subjects in each group.

As is evident from tables 17 and 18, the dietary patterns of the child followed those of the household. Both household and child Cases ate significantly less protein and less kilojoules than did Controls.

The household food practices regarding whose needs should get priority when the amount of money for food was limited, was statistically similar in both groups: 88% of Case mothers and 96% of Control mothers felt that the needs of younger children and infants should get priority over the needs of fathers, husbands, household heads, adults in the household and older children.

Fewer Case than Control mothers (38% versus 46%) reported that the child's appetite, before it started getting sick, was "good" as opposed to "poor", or "fair". This difference approached significance.

5.4.2 Breast-feeding and Weaning Practices

Most Cases (94%) and Controls (90%) were breastfed. However, 40% of Cases (compared with approaching significantly fewer Controls, 28%) were breastfed for only three months or less. Significantly fewer Cases (10%) than Controls (32%) were still being breastfed at the time of the interview - noting that the age of the Case and Control child was matched ($p < 0,05$). Further, significantly fewer Case mothers (10%) than Control mothers (24%) perceived themselves to have had "a lot" rather than "a small amount" of breastmilk ($p < 0,05$). It would appear then, that the Case child was breastfed for a shorter period than the Control child and that the Case mother had less breastmilk than the Control mother.

5.4.2.1 Milk Formulae

The majority of children in both groups (90% of Cases and 84% of Controls) were being fed some type of non-breast milk as a supplement, or as an alternative to breastmilk. In accordance with the breast-feeding practices described above, the Case child was introduced to non-breastmilk at a leaning towards significantly younger age than the Control child, i.e. 64% of Cases (compared with 52% of Controls) were introduced to non-breastmilk at the

age of three months or less. The types of non-breastmilk that the children were consuming are outlined in table 19.

TABLE 19. Types of Non-breastmilk Consumed

TYPES OF NON-BREAST MILK	CASE %	CONTROL %
FULLY AND PARTIALLY MODIFIED FORMULAE i.e. Nan, S26, Lactogen, SMA, Cow and Gate	31	36
HYPO-ALLERGENIC FORMULAE – Lactose and Whey protein intolerance i.e. Isomil, Infa-Soy	11	2
UNMODIFIED DRIED AND LIQUID FULL CREAM COWS' MILK i.e. Nespray, Klim, No-name Brand, fresh cows' milk, Ultramel, Longlife, Condensed Milk	56	62
UNMODIFIED DRIED LOW FAT COWS' MILK i.e. Skimco	2	0

Case N = 45, Control N = 42 (mothers who were using non-breast milk)

Only 36% of mothers in each group who were using non-breast milk, were diluting the formulae correctly (i.e. according to the manufacturers' instructions), while 46% of Case mothers and 44% of Control mothers were diluting the formulae incorrectly (i.e. mixing either more or less powder than required). A common error was the use of a teaspoon, rather than the enclosed scoop, with which to measure the powder. There was thus no significant difference between the two groups' diluting practices, and of the 87 mothers who were using formulae, 36 (i.e. 41% of the sample) were diluting incorrectly.

More than half of the mothers (70% of Cases and 66% of Controls) reported that the non-breastmilk mixture that was prepared especially for the child, was served only to the child and not to other household members as well. Over half of the sample (64% of Cases and 58% of Controls) did not add other nutrients to the milk; 20% in each group added foods that were mainly carbohydrate in composition and 4% in each group added foods that were mainly protein-carbohydrate combinations. The exact amount of non-breastmilk that the child was consuming is indicated in table 20 and was calculated in millilitres from informa-

tion elicited by the question: "How many bottles/cups of milk does the child drink per day ?" An example of the detail required in the answer was given to the interviewer: "4 bottles, diluted as above and a quarter of one bottle was thrown away." The size of the bottle or cup was also noted.

TABLE 20. Amount of Non-breastmilk Consumed per Day

AMOUNT OF NON-BREAST MILK CONSUMED PER DAY	CASE %	CONTROL %	z SCORE
299 ml or less	20	17	0,36
300 – 449 ml	20	33	-1,37[v]
450 – 599 ml	9	9	–[1]
600 ml or more	22	24	-0,22
Don't know	29	17	1,33[v]

Case N = 45, Control N = 42

[v] leaning towards significance

[1] It is inappropriate to calculate z scores on highly skewed distributions, with a sample size of only 50 subjects in each group.

To a level approaching significance, fewer Cases than Controls consumed between 300 and 449 ml of non-breast milk per day. This finding needs to be considered in conjunction with the child's dietary patterns and nutrient requirements. Also, to an extent approaching significance, more mothers in the Case group did not know the amount of non-breast milk consumed by the child.

5.4.2.2 Hygiene in Milk Preparation

Most Cases and Controls (80% and 70% respectively), washed and sterilised the child's bottles, teats, spoons and mixing jars. This difference approached significance. Detergent and a brush were used by 72% of Cases and 64% of Controls. The types of detergents used are listed in table 21.

Table 21. Detergents used for Sterilising

DETERGENTS USED FOR STERILISING	Case %	Control %	z Score
Milton, Jik Javel	28	26	0,23
Dishwashing Liquid	2	8	–[1]
Washing Powder (clothes)	30	16	1,66*
Salt	12	14	-0,30
No detergent at all	28	36	-0,86

Case N = 50, Control N = 50

* $p < 0,05$

[1] It is inappropriate to calculate z scores on highly skewed distributions, with a sample size of only 50 subjects in each group.

Significantly more Cases (74%, compared to 60% of Controls, $p < 0,05$) boiled the water for cleaning and diluting. However, only 16% of Cases and 12% of Controls sterilised the utensils and boiled the water for every feed, and 46% of Cases and 40% of Controls left bottles, teats, spoons and mixing jars in the sterilising water until needed.

For 52% of each group, the milk that was not finished at one feed, was used for the child at another feed. It is not known whether or not this unused milk was stored in a refrigerator. As the same number of Cases and Controls re-used the milk, and a similar number of Cases and Controls had refrigerators (see table 3), the chance of contaminated milk being fed to the child is equally likely for both groups.

5.4.2.3 Introduction of Solids

Solid food was introduced to the diets of 76% of Case children and 88% of Control children from the age of 6 months or younger. This difference approached significance.

The types of food introduced to the Case and the Control child's diet were similar: 70% of Cases and 74% of Controls were introduced to food that was mainly carbohydrate in composition; 24% of Cases and 18% of Controls were introduced to food that was mainly a protein-carbohydrate combination; and 2% of Cases and 6% of Controls were introduced to fruit. Of those children who were fed porridge or cereal, 74% of Cases and 68% of Controls had the porridge/cereal diluted with milk, and 12% of Cases and 20% of Controls had

it diluted with water, or with both milk and water. Very few children (4% of Cases and 2% of Controls) were not yet on solids.

It was beyond the scope of the present study to perform a detailed nutrient analysis of the child's diet. Yet, the above findings indicate that the Case child's diet was grossly deficient, whereas the Control child's diet was adequate, in terms of the child's protein-energy requirements. However, unexpectedly, mothers of Case children practised better food hygiene.

5.4.3 Mothers' Attitude towards the Child's Nutrition

Most mothers (88% of Cases and 96% of Controls) were satisfied with the diet that they were able to give the child. When asked "if circumstances allowed, how would you change the child's feeding?", 78% of Case and 84% of Control mothers answered that they thought there was no need to change the child's feeding. Of those mothers who would have liked to change the child's feeding (22% of Cases and 16% of Controls), only 8% in each group could specify what changes they would like to have made.

It is evident that at least 78% of Case mothers were not aware that their child was underfed: yet significantly more Cases (72%, compared with 52% of Controls, $p < 0,05$), claimed to have learned predominantly from clinic or hospital workers (rather than from female relatives, friends, acquaintances, mass media or employers), about what a child should eat.

5.5 Medical Aspects

5.5.1 Medical History of Child

The majority of children in the sample were born in a hospital or clinic (i.e. 96% of Cases and all Controls). There was a leaning towards significance where Cases appeared to have remained in hospital for longer after birth than did Controls: 44% of Cases and 56% of Controls were hospitalised for less than 24 hours after birth, while 52% of Cases and 44% of Controls were hospitalised for between 24 hours and 6 weeks after birth (these figures do not include those 'healthy' children who stayed in hospital due to the mother's post-natal

condition). It is indicated that Cases leaned towards a significantly lower birth weight than did Controls, as 10% of Cases and 0% of Controls were artificially incubated after birth. It was not possible to obtain the child's actual birth weight. According to the mothers' value judgement, a statistically similar percentage of Case (54%) and Control (48%) mothers perceived that the child got sick often (e.g. chest problems, asthma, pneumonia, stomach ache, vomiting, influenza, colds etc.).

Yet, significantly more Cases (50%, compared with 30% of Controls, $p < 0,05$) had a history of one or more previous hospital admissions. Further, of the hospitalised children, significantly more Cases (60% as opposed to 33% of Controls, $p < 0,05$) had been hospitalised for a period of 2 days or longer, rather than just overnight.[1] This suggests that the severity of the Case child's condition at these admissions was greater than that of the Control child's.

According to the mothers, significantly more Cases than Controls had been hospitalised for diarrhoea and there was a leaning towards significance with fewer Cases than Controls being hospitalised for chest problems, as illustrated by table 22.

At the time of the interview, 20% of Case mothers and 16% of Control mothers claimed to have taken the child to a traditional doctor or faith healer, prior to bringing the child for hospital or clinic treatment.

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1 Case N = 25, Control N = 15, viz. those children who had a history of one or more previous hospital admissions.

Table 22. Diagnoses of the Child's Previous Hospital Admissions

DIAGNOSES OF THE CHILD'S PREVIOUS HOSPITAL ADMISSIONS, AS RECALLED BY THE MOTHERS	CASE %	CONTROL %	z SCORE
Chest problems i.e. Asthma, Pneomonia, Bronchiolitis, Cough, Influenza, Tonsilitis	8	33	-2,04*
Diarrhoea	68	27	2,51*
Kwashiorkor/PEM	4	0	–[1]
Measles	0	13	–
Operation/ Surgery	4	7	–
Other i.e. Rash, Fever, Jaundice, Sore Eyes	12	13	–
Don't Know	4	7	–

Case N = 25, Control N = 15 (those children who had a history of one or more previous hospital admissions).

* $p < 0,05$

[1] It is inappropriate to calculate z scores on highly skewed distributions, with a sample size of 50 subjects or less in each group.

5.5.2 Medical Condition of Child at the Time of This Study

The medical condition of the child in the Case and Control groups at the time of the interview, was congruent with and followed the pattern of their medical histories described above.

Significantly more Cases than Controls were diagnosed by the medical staff at the hospital or clinics as having Gastro-Intestinal Pathology - what the mothers called "diarrhoea" - and significantly fewer Cases than Controls were diagnosed with Respiratory Tract Infections (lower and upper) - what the mothers called "chest problems". Table 23 overleaf shows

the children's medical diagnoses at the time of hospital/clinic admission/examination, and hence at the time of the interview.

Table 23. Primary Medical Diagnoses of the Child

PRIMARY MEDICAL DIAGNOSES OF THE CHILD	CASE %	CONTROL %
PEM AS A PRIMARY DIAGNOSIS i.e. Kwashiorkor Marasmus and Marasmic Kwashiorkor	42	0
GASTRO-INTESTINAL PATHOLOGY e.g. Persistent Acute and Chronic Gastro Enteritis	24	30
LOWER RESPIRATORY TRACT INFECTION e.g. Early-, Aspiration- and Bronchio-Pneumonia, Cough, Bronchitis, Bronchiolitis	18	28
UPPER RESPIRATORY TRACT INFECTION e.g. Tonsilitis, Pharyngitis, Throat Ulcer	8	20
TOTAL RESPIRATORY TRACT INFECTION i.e. UPPER AND LOWER	**26**	**48**
CENTRAL NERVOUS SYSTEM e.g. Meningitis, Encepheiitis, Meningo-Encephelitis	4	6
MEASLES AND POST-MEASLES COMPLICATIONS e.g. post-measles pneumonia	2	0
OTHER e.g. Asthma, Thrush, Fungal and Insect Bite Rashes, Paraffin Poisoning, Congenital Squint	2	16

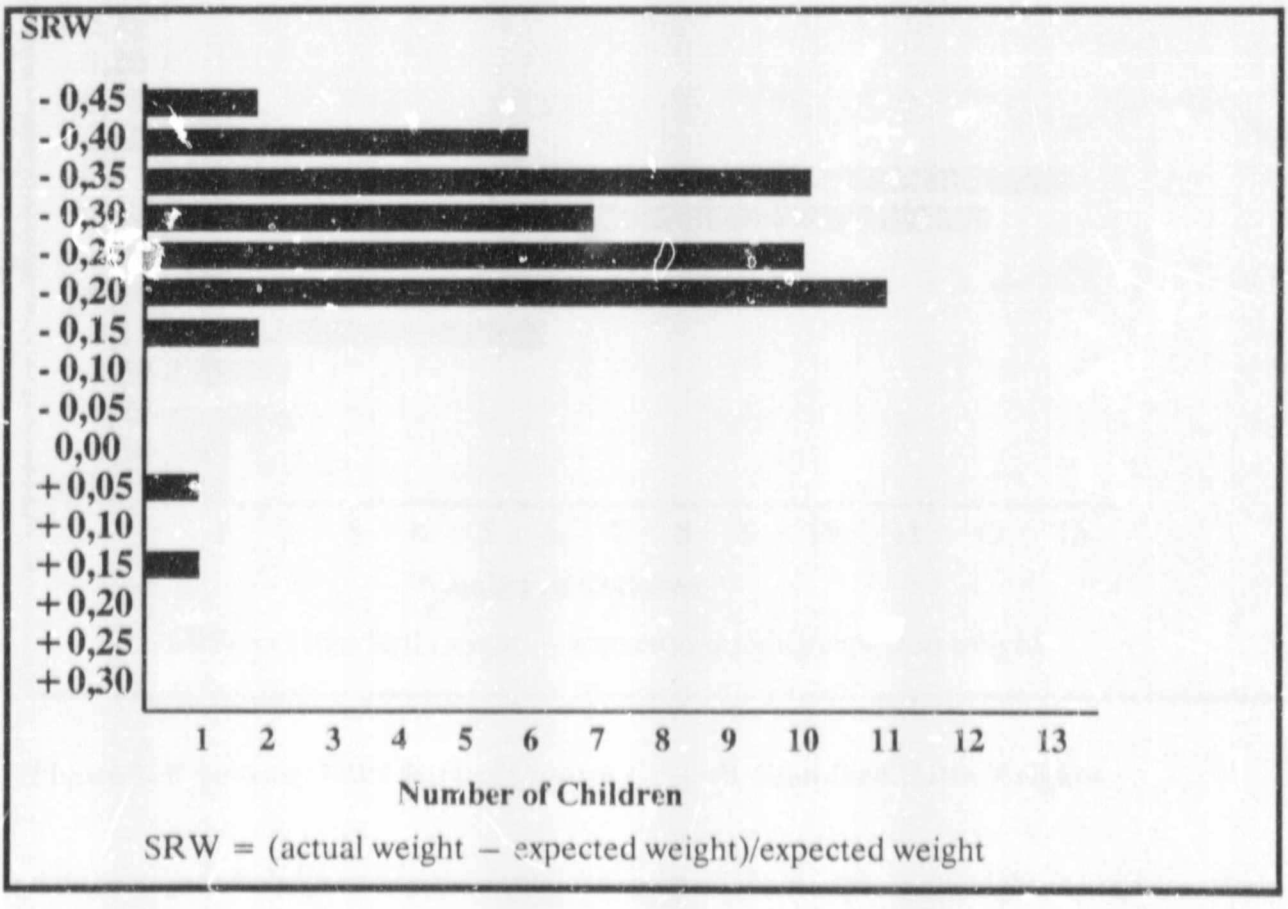
N = 100 (50 Cases and 50 Controls)
Levels of significance have not been indicated in this table because some children had more than one primary diagnosis.

Of those Cases with PEM as a primary diagnosis, one child had died a few hours before the interview and 28% had a second diagnosis made up as follows: Gastro-intestinal Pathology (24%), Lower Respiratory Tract Infection (2%), and Meningitis – Central Nervous System (2%). If these secondary diagnoses are included in table 23, then significantly more

Cases than Controls were diagnosed with Gastro-intestinal Pathology. Significantly fewer Cases than Controls were diagnosed with Respiratory Tract Infection (Lower And Upper).

It is evident that the Cases' and Controls' medical diagnoses reflected their nutritional status: Gastro-intestinal Pathology, Measle and Post-Measles complications are conditions commonly associated with PEM (see section 6.5.1), whereas Respiratory Tract Infection, especially Bronchiolitis, occurs more frequently in adequately nourished children. As could be expected, significantly fewer Cases than Controls were diagnosed with conditions grouped above as 'other', i.e. allergies (e.g. asthma and most of the insect bite rashes), and conditions that were not actual illnesses (e.g. thrush, paraffin poisoning and congenital squints).

Figures 2 and 3 show the Standard Ratio Weights (SRW) of the children in the Case and Control groups, where SRW = (actual weight - expected weight)/expected weight.



Fiqure 2. Frequency Bar Chart of Case Group's Standard Ratio Weights

A negative SRW corresponds to a child whose actual weight is less than its expected weight. An SRW of -0,10 corresponds to a child who weighs 90% of its expected weight for age, which is the minimum requirement for an adequately nourished child. A child with an SRW of -0,15 (i.e. whose actual weight is 80% of its expected weight), is considered to be malnourished.

The Cases at 0,05 and 0,15 had massive oedema which pushed their weights up considerably. However, as the Cases were both diagnosed with overt PEM, they were included in the sample. With these two exceptions, all the Case children weighed less than 80% of their expected weight for age (i.e. their weights were below the third percentile of the Boston weight for age standards – see Appendix B).

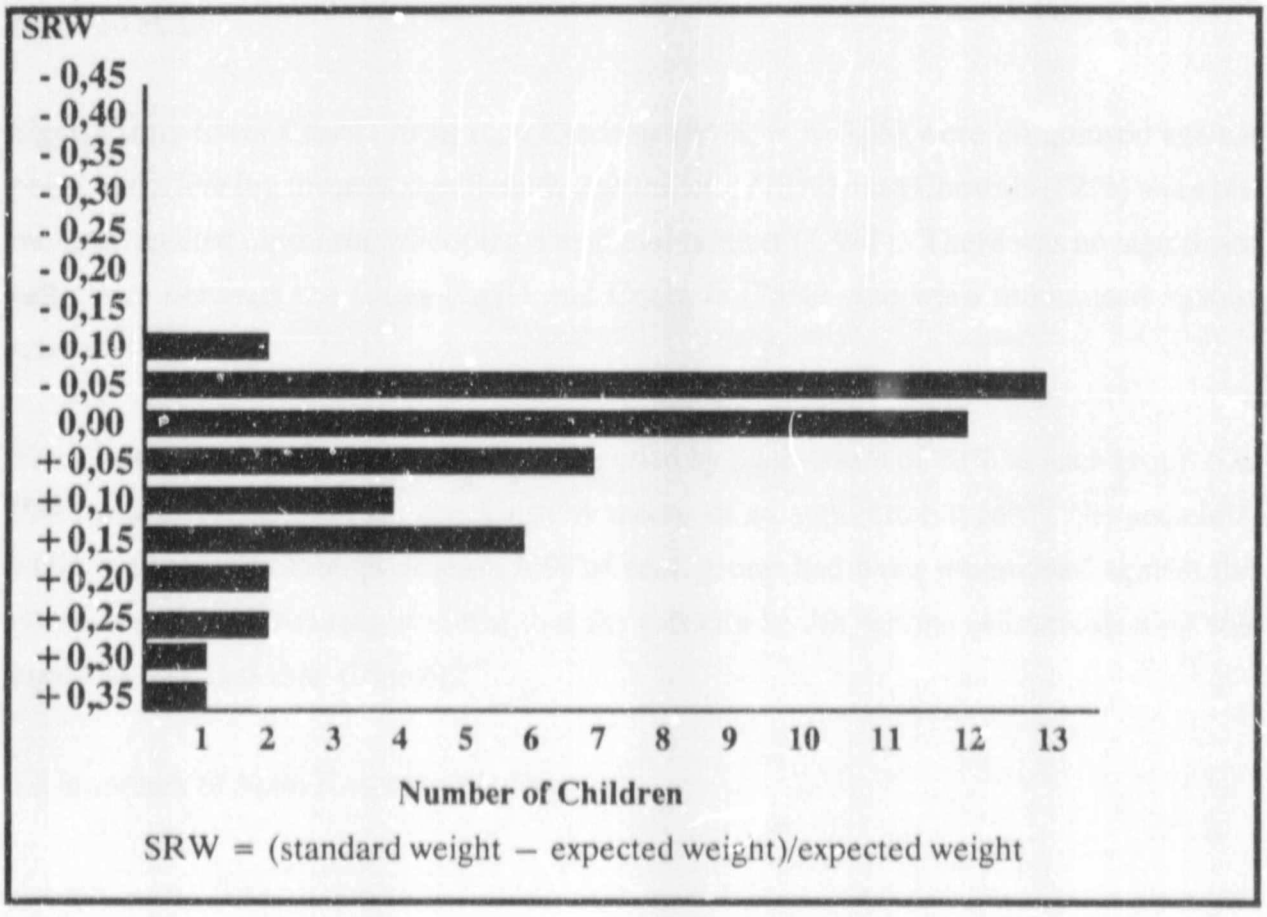


Figure 3. Frequency Bar Chart of Control Group's Standard Ratio Weights.

All the Control children weighed 90% or more of their expected weight for age (ie. their weights were on or above the twenty fifth percentile of the Boston weight for age standards - see Appendix B).

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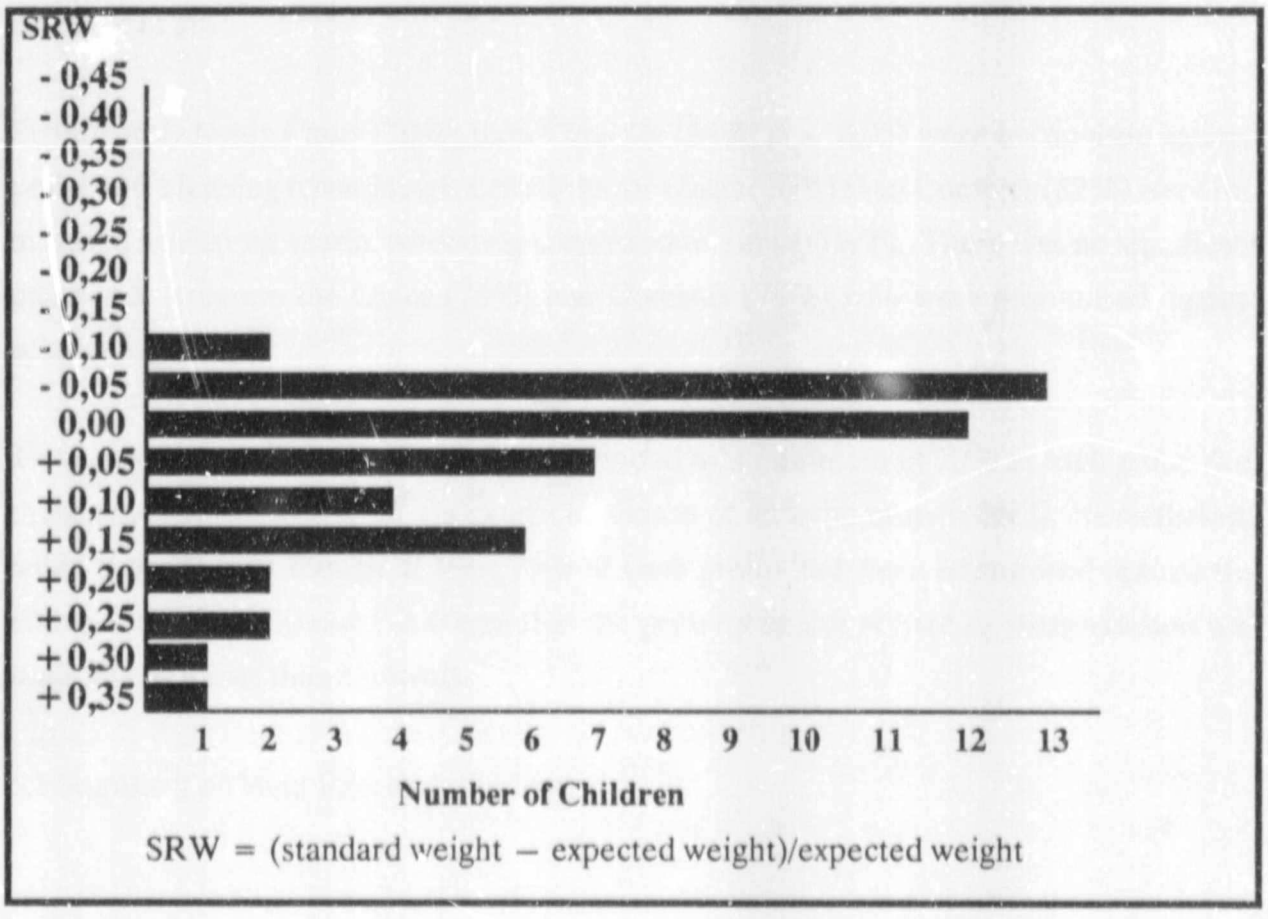


Figure 3. Frequency Bar Chart of Control Group's Standard Ratio Weights.

All the Control children weighed 90% or more of their expected weight for age (ie. their weights were on or above the twenty fifth percentile of the Boston weight for age standards - see Appendix B).

5.5.3 Use of Primary Health Services

Use of primary health services was indicated by examining the examples of regular hospital or clinic check-ups and immunisations. Most mothers (94% of Cases and 92% of Controls) said that they took the child for regular hospital or clinic checkups (i.e. when the child was not sick) and for immunisations. Yet, only 70% of Cases and 72% of Controls were in possession of hospital or clinic appointment cards, and even fewer mothers (58% of Cases and leaning towards significantly more Controls - 68%) had immunisation cards to demonstrate that the child had been immunised against polio, diptheria, whooping cough, tetanus and tuberculosis. Significantly more Case (30%) than Control mothers (16%, $p < 0,05$) provided verbal [1] information concerning these immunisations and 12% of Case mothers and 16% of Control mothers did not know whether or not the child had been immunised at all.

Significantly fewer Cases (70%) than Controls (84%, $p < 0,05$) were immunised against polio, and a leaning towards significantly fewer Cases (70%) than Controls (82%) were immunised against diptheria, whooping cough and tetanus (DWT). There was no significant difference between the Cases (76%) and Controls (78%) who were immunised against tuberculosis.

Thus, hospital or clinic check-ups were attended by a minimum of 70% in each group (i.e. those who could account for check-ups by means of an appointment card). Nevertheless, while it appears as though at least 70% of each group had been immunised against the above-mentioned diseases, it seems that the primary health service of immunisation was used less by Cases than Controls.

5.6 Summary of Main Research Findings

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1 Due to the tangible nature of these particular immunisations, (i.e. Polio – drops in the mouth; DWT – 3 injections; and Tuberculosis – stamp on body), the mothers' recall of the immunisations is probably relatively accurate.

The thrust of the preceding analysis is that the Case group differed from the Control group in several major respects:

(i) Case households were significantly more impoverished than Control households, in terms of overcrowding; more females per households; fewer economically active people per household; and fewer household possessions.

(ii) Case children appeared more likely to come from a family with a broken structure, i.e, neither nuclear nor extended in composition. In contrast, the family type of Control children often appeared to be somewhat nuclear in structure.

(iii) Case children spent significantly fewer hours per day with a care-giver than did Control children. However, significantly more Cases had been cared for by a care giver from a younger age than Controls. Case mothers identified the child-care arrangements, rather than the child's nutritional practices, as inadequate. Significantly more Case than Control mothers felt that they would have liked to have cared for the child themselves, or to have had a good child-minder/creche.

(iv) In terms of the mothers' true home tongue or first language, significantly more Cases than Controls spoke Sotho and significantly fewer Cases than Controls spoke Zulu. However, the languages most often spoken by the mothers in the Case and Control groups at the time of the interview were more comparably distributed.

(v) Significantly more Case than Control mothers drank alcohol. However, there was no indication that these mothers had drinking problems.

(vii) The social support systems of Case mothers were largely restricted to female relatives, compared with Control mothers whose social support systems included males, and groups within the community.

(vii) The dietary patterns of the child followed those of the household. Both household and child Cases ate significantly less protein and kilojoules than did Controls. The Case child's diet was grossly deficient (whereas the Control child's diet appeared more adequate) in terms of the child's protein energy requirements.

(viii) Case mothers were not aware that their child was underfed, despite the fact that significantly more Case than Control mothers claimed to have learnt predominantly from clinic or hospital workers about what a child should eat.

(ix) Significantly more Case than Control children had a history of one or more previous hospital admissions, and had been hospitalised for a period of two days or longer, rather than just overnight. The Cases appeared to have been hospitalised predominantly for Gastro-Intestinal Pathology (which the mothers called "diarrhoea"), whereas Controls tended to have been hospitalised for Respiratory Tract Infections (which the mothers called "chest problems").

(x) The medical condition of the child in the Case and Control groups at the time of the interview, was congruent with and followed the pattern of their medical histories. Significantly more Cases than Controls were diagnosed by the medical staff at the hospital or clinics as having Gastro-Intestinal Pathology, and significantly fewer Cases than Controls were diagnosed with Respiratory Tract Infections (Lower and Upper).

Finally, in addition to the differences noted above, attention must also be given to the many similarities found between the Case and Control groups, demonstrating the degree of comparability between the two groups. Moreover, similarities relating to the mothers' age, level of education and reproductive histories challenge some commonly held beliefs, as will be discussed in section 6.3.

Chapter 6: Discussion of Main Research Findings

> What matters for us is not to collect facts and behaviour but to find their meaning
>
> Frantz Fanon

Discussion of the major research findings in this chapter has been arranged along the same lines as chapter 5 (see figure 1 in that chapter). The detailed findings are not presented here, but may be found under the corresponding main sections in chapter 5 (see Figure 1, Structure for Presentation of Findings).

6.1 Household Structure

6.1.1 Impoverishment in the Household

Statistical analysis, conducted as indicated in section 4.5, showed that both Case and Control groups had elements of impoverishment, but that Case households were significantly more impoverished than Control households (see section 5.1). This confirms Cohn's (1978:17) contention that "a family's position on the economic gradient is most likely to have an impact on ability to provide an adequate diet". Poverty has been authoritatively recognised as being the main contributor to the incidence of malnutrition (WHO, 1972; Schertz, 1973; Okeahialam,1975).

Yet, the supply of money and the provision of food does not eradicate the condition (Hegsted, 1972). Moodie (1982:3) argues that where general impoverishment has dictated the pattern of life, the ability to earn money must be developed because this ability "presupposes that some of the degrading effects of chronic want have already been overcome". Those people living in underpriveleged, low socio-economic circumstances are in a crisis of adaptation to "the excessive demands of current change" (Moodie, 1982:2). Some of these current changes in Soweto and other South African urban townships are:

- the increase in unemployment;
- the rise in prices of basic foods (see Appendix E); and
- aggravated social unrest, violence and death (see section 3.4).

While malnutrition is a consequence of this crisis of adaptation, "those children who become overtly malnourished are casualties within their own setting" (Moodie, 1982:2) i.e. not all children living within a poverty-stricken environment become overtly malnourished.

However, when the impoverishment is relatively severe, this study found a significant presence of overt malnutrition. It is thus important to consider the factors which may lead a family into extreme poverty. These factors will be discussed with regard to the various research findings.

6.1.2 Type of Family Structure

The Case children appeared more likely to come from a family with a broken structure i.e. neither nuclear nor extended in composition. In contrast, the family type of Control children often appeared to be somewhat nuclear in structure (see section 5.1.2).

Before discussing the effect of family structure on the nutritional status of the child, it is necessary to examine the nature of this structure.

The structure of a family is its social organisation i.e. the relationships between the individuals living together; and the ways in which they function as a unit to meet their own and each other's needs.

Minuchin (1974:51) defines family structure as: "the invisible set of functional demands that organises the way in which family members interact". The family structure is thus a response to "various recognisable pressures within a framework of biological, psychological, ecological, and social limitations" (Fox,1967:25). Political restrictions must also be considered when studying Black families in South Africa.

The nuclear family structure is a recent historical development which arose in response to urban industrialised society. The family with a broken structure is in a transitional phase: the extended family in its traditional form is rapidly disappearing, and other adaptive and functional social relationships have not yet emerged. The apparent association between PEM and family structure (as shown by the results of this study), implies that the family with the broken structure is not meeting its childrens' nutritional needs.

This is not to suggest that all families should strive for a nuclear structure. Instead the families with a broken structure need to generate a new structure which must be "adequate to, and harmonious with, the functions of its individual members, its sub-groups, and the social environment of which it is a part" (Aponte, 1982:313).

6.1.2.1 Urbanisation and the Family

Change always moves from society to the family, and it would appear that these 'broken' families have not developed a well-defined, flexible and cohesive family structure in response to the socio-economic and political situation in which they find themselves (Minuchin,1974).

It would thus seem that these families have not successfully adapted to the urban area of Soweto. In most instances, the duration of the family members' residency in Soweto is not known, but most of the mothers in both groups (74%) had permission to be in the urban area of Soweto (i.e. they held Section 10 Residency Permits). This indicates that these mothers were not recent urban migrants. Furthermore, adjustment to an urban environment is not dependent on the amount of time spent in that environment, but rather on the assimilation into that environment (Mayer and Mayer, 1971).

Thus impoverishment may be the cause of the urban maladjustment of these families, or vice versa. Whichever the case, the State has not encouraged Black families to become urbanised, and has in fact inhibited this process by legally enforcing segregation and apartheid (see chapter 3). Those families who have adjusted to the urban setting have done so because of their own creativity and ingenuity.

6.1.2.2 Families in Crisis and the ABCX Model

Case families are in a state of an ongoing crisis, and may be understood in terms of the Double ABCX model postulated by McCubbin et al (1982,1983). This model attempts to differentiate between those families which deteriorate in the face of hardship (Cases), and those which appear to cope (Controls). O'Neil (1987:1-4) has summarised the model as follows:

> The Double A-factor refers to stressors which contribute to a pile-up in the family system in a crisis situation. There are at least three kinds of stressors involved here:
>
> - the initial stressor event;
> - the family life changes and events (maturational and role crises); and
> - stressors consequent on the family's efforts to cope with the hardships of the situation.
>
> The Double B-factor refers to the family's resources, which appear to be of two general types:
>
> - those readily available to the family which minimise the impact of the initial stressor and reduce the probability of crisis; and
> - those new resources developed in response to a crisis situation.
>
> Coping resources identified in longitudinal research include: self-reliance and self-esteem, family integration, social support systems, group support and social action.
>
> The Double C-factor refers to the family's perceptions of the crisis which involves:
>
> - the family's view of the stressor event and related hardships;
> - the pile-up of life events; and
> - the meaning families attach to their total situations.
>
> These perceptions appear to involve:
> (a) religious beliefs;
> (b) a redefining of the situation; and
> (c) endowing the situation with meaning.
>
> The Double X-factor. Here the notion of family adaptation is introduced as a possible outcome after a crisis. Balancing the various dimensions of family life is a difficult process involving assimilation, accommodation, and compromise. Some families are able to use the disruptions

as opportunities for growth which enhance the family system. The extent to which the family adapts well is a product of the interaction of the previous three variables (A,B and C).

In order to plan appropriate treatment, it is extremely important to analyse the pile-up in the family system. To do this [O'Neil has] chosen Hoff's (1984) classification of crises. [Hoff] sees crises as falling into three categories: situational (unanticipated), transitional state (anticipated), and cultural/social-structural.

1. Situational Crises. These originate from three sources:

- material or environmental (such as fire or natural disaster);
- personal or physical (heart attack, diagnosis of terminal illness, loss of limb or other bodily disfiguration from disease, accidents - or unrest);
- interpersonal or social (death of a loved one, or divorce).

2. Transitional state crises. These consist of two types:

- universal: life cycle or normal transitions consisting of developmental phases from birth to death;
- non-universal: passages in life which signal a shift in social status (role crises).

3. Cultural/Social-structural crises. Hoff(1984:41) gives as examples:

- job loss resulting from discriminatory practices on the basis of age, race, sex or class;
- crises resulting from the deviant acts of others which violate acceptable social norms - robbery,rape, incest, marital infidelity, physical abuse;
- violence against women and children, related to values about discipline, women and social-structural factors in the family;
- residential relocation which is related to economic class, ethnic and (in this country) ideological issues.

To these examples, of course, we can add crises which result from unrest, detention and bomb blasts, as well as retrenchment due to disinvestment and the economic recession (linked to sociopolitical factors).

Compared with Control families, it is clear that Case families have greater stressors (e.g. more severe impoverishment), and fewer coping resources (e.g. a less integrated family structure, and mothers with limited social support systems). Case families seem to be experiencing all three types of crises identified by Hoff (1984). Social work intervention thus needs to be related to these three types of crises. A situational crisis should be responded

to by a problem-solving or task-centred approach. A transitional state crisis could be treated with behaviour modification or cognitive restructuring (presented in chapter 7)

While any of these methods may help to alleviate the immediate crisis, "a cultural/social-structural crisis is less amenable to control by individuals" (O'Neil, 1987:4). Here the sources of stress must be eliminated and hence networking, community organisation, and social action will have to be undertaken.

.2 Child Care Practices

The overall child care practices in both the Case and Control groups were similar. However, the significant difference between the child care practices between the two groups was that Case children spent significantly fewer hours per day with a Care Giver, than did Control children. Care Givers were present from a younger age for the Case group, significantly so compared with the Control group (see section 5.2).

The quality of the care provided by the mother and the Care Giver, needs to be examined, especially since Case mothers identified the child-care arrangements (rather than the child's nutritional practices) as inadequate. Significantly more Case than Control mothers felt that they would like to have cared for the child themselves, or to have had a good child-minder or creche (see section 5.2).

6.2.1 Quality of Child-Care

"Methods of child-rearing and the quality of maternal child relationships have been implicated in nutritional status as well as intellectual development" (Rosen. 1978:21, supported by Evans,Moodie and Hansen, 1971; Keet, Moodie, Whitman and Hansen, 1971). As Dibble and Cohen (1980) indicate, a mother's relationship with her children must be seen in the context of broader social influences. Bronfenbrenner (1979) and Marks (1986) comment that demands, stresses and supports emanating from a variety of settings determine whether parents can perform effectively in their child-rearing roles. Kagan, Kearsley and Zelazo (1978), Kohn (1969), and others demonstrate that parents draw on their own experiences to rear their children.

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