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Pathways to child hospitalization : psychological, social and medical factors associated with the admission to hospital of children with gastroenteritis : a study of mothers and doctors.

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PATHWAYS TO CHILD HOSPITALIZATION

Psychological, Social and Medical Factors
associated with the Admission to Hospital
of Children with Gastroenteritis: a study
of mothers and doctors.

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(1988)

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Many things can wait.
The child cannot.
Right now is the time her bones are being formed.
Her blood is being made.
And her senses are being developed.
To her we cannot say 'Tomorrow'.
Her name is 'Today'.

Gabriela Mistral

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CONTENTS

	Page
ACKNOWLEDGEMENTS	(v)
OUTLINE OF STUDY	(vi)
SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS	(vii)

Section 1

Introduction

1.1	Introduction	1
1.2	Effects of Hospitalization on Young Children	9
1.3	Background to the Present Study	19
1.4	The Present Study	29

Section 2

Doctors' Decision-making on the Management of Gastroenteritis

2.1	Introduction	34
2.2	Decision Making	35
2.3	Methodology	40
2.4	Findings	42
2.5	Discussion	70
2.6	Summary	82

Section 3

Family Circumstances associated with Hospital or Home Care
Management of Childhood Gastroenteritis

3.1	Introduction	85
3.2	Literature Review	89
a)	Management and Understanding of Illness in Children ..	89
b)	Family Structure	94
c)	General Family Environment of Children	101
d)	Family Health	108
3.3	Methodology	114
3.4	Findings	122
a)	The Families Studied	122
b)	The Gastroenteritis Episode	126
c)	Family Structure	142
d)	General Family Environment of Children	147
e)	Family Health Behaviour	165
f)	Summary of Findings for Hospital and Home Care Groups	175
3.5	Discussion	188
3.6	Summary	202

Section 4

General Discussion

4.1	Introduction	205
4.1	Group Differentiation	206
4.2	Maternal Anxiety	209
4.3	Hospitalisation	213
4.4	Casualty Department Use	216
4.5	G.P. Gastroenteritis Management	217
4.6	Out-patient Facilities	221
4.7	Gastroenteritis Management in the Context of the Current Irish Health Care Situation	227
	References	232

Appendices

247

Appendix 1	Gastroenteritis Vignette Information
Appendix 2	Doctors' Interview Schedule
Appendix 3	Mothers' Interview Schedule
Appendix 4	Leaflets on Gastroenteritis Management

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Outline of Study

Gastroenteritis is a common self-limiting illness of childhood. Hospital treatment, except in severe cases, involves treatment which is the same as that given at home on medical advice or on parents' own knowledge. Nevertheless, in Ireland over 2,000 young children are hospitalized annually with this diagnosis. The objective of this study was to examine the reasons for the hospitalization of young children with gastroenteritis, with a view to decreasing the incidence of medically unnecessary admissions.

Doctors and mothers were interviewed. For GPs and Casualty Doctors (the primary providers of the medical management of gastroenteritis), management decisions and the factors influencing them were systematically evaluated. Family and home circumstances of children hospitalized for gastroenteritis were compared with the circumstances of families managing gastroenteritis at home. Combining the two sources of information the major role of the individual doctor in the management of gastroenteritis emerged. The findings of the present study indicate that there is considerable scope for improvement in present gastroenteritis management. Possible improvements have been suggested at the level of GPs' and mothers' management, and at the level of management intermediate between the GP and hospitalization. These suggestions have been made in the light of the current situation in health care in Ireland.

The report consists of four main sections. The problem of gastro-enteritis as it is relevant to this study is outlined in Section 1. The background and the research work concerning doctors and their decision-making is presented in the next section (Section 2). Following this is a detailed comparison of the child and family circumstances of those with gastroenteritis who have been managed at home and in hospital (Section 3). The final section (Section 4) presents information on the most fruitful alternatives to hospitalization as suggested by study findings and the current Irish situation. An executive summary of the main findings of the study is provided at the beginning of the report.

SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS

- A. Doctors' Decision-making on the Management of Gastroenteritis**
- (i) The sample studied broadly reflected the structure of the Irish medical population making gastroenteritis referral decisions (i.e. GPs and Casualty Department doctors).
 - (ii) Gastroenteritis in the under twos is a considerable consumer of doctors' time. An average of seven cases weekly is seen by each doctor working in Children's Casualty Departments, and 4.4 cases are seen weekly by GPs. Such cases represent 2.4% of GPs weekly consultations.
 - (iii) Large differences in gastroenteritis management and in referral rates exist between doctors, in both an experimental situation (paper patients/vignettes) and in their own reported practice policy.
 - (iv) Most childhood gastroenteritis is managed at home with Oral Rehydration Therapy (ORT) and patient recall. Ten per cent (10%) of actual and 21% of vignette cases are referred to hospital, and 16% of doctors use medication in gastroenteritis management on some occasions.
 - (v) Vignette analysis revealed that severe medical symptomatology was the most important patient factor in gastro- enteritis referrals. The next factors (and more important than moderate symptomatology) were young age of child, single mother and anxious mother; all being of equal influence in hospital referrals. The cumulative effect of these non-medical factors was not additive, the presence of one 'vulnerability' factor having by far the most important effect on referral rates.
 - (vi) Functional, as opposed to structural, non-medical factors are the important general family considerations in gastroenteritis management by doctors. The ability of parents to cope emerged as a major theme of these factors.

- (vii) Negative previous experiences of gastroenteritis (including vocational training in a hospital centre for gastroenteritis) is the most important doctor factor in determining a GP's management decision. The other important factors are estimates of the severity of the disease generally and the workload of the doctor. Busier GPs (although not because they are also GMS GPs) refer more patients to hospital. General belief about the severity of gastroenteritis is also the most important factor in hospital doctor referral decisions.
- (viii) When characteristics of doctors and non-medical characteristics of families are considered together, characteristics of doctors account for almost all GP variability in referral rates and over one third of hospital doctor variability.
- (ix) Casualty Department referral rates to hospital are significantly higher than GP referral rates and are accounted for by one of two Casualty Departments referring more than twice the level of vignettes and patient population cases to hospital. Reasons for this appear to reflect the organisational differences in Casualty Department management rather than broadly differing attitudes or demographic characteristics of doctors.
- (x) Half of the doctors queried did not have a clear belief in the detrimental effects of hospitalization on young children. Beliefs on this issue were not related to any doctor variables such as experience or education.
- (xi) Doctors' suggestions for the improvement of the gastro- enteritis situation centre on education for parents in hygiene and oral rehydration.
- (xii) Doctors were in favour of the health education methods of leaflets, video and the media in that order with the majority (78%) seeing leaflets as useful/usable by them in their own work for the management of gastroenteritis.

B. Family Circumstances associated with Hospital or Home Care Management of Childhood Gastroenteritis

- (i) Considerable overlap existed between family characteristics of hospital and home care groups, as revealed both by discriminant analysis and single variable comparisons. By doctors' ratings, there were no differences in the severity of the gastroenteritis symptomatology of hospitalized children and those who were managed at home. Hence, much of the hospital/home care distinctions in this study were not made by family or medical severity criteria.
- (ii) Of those variables which did differentiate hospital and home care groups social contact variables appeared to have the major role. Those with fewer social and leisure contacts and poorer family of origin relationships were more likely to have a child hospitalized for gastroenteritis.
- (iii) Both groups of mothers were well, and equally well, aware of the negative influence of hospitalization on young children generally. Evidence suggested that the more positive attitudes of hospital care mothers to the current hospitalization of their child reflected in part current family circumstances and in part a cognitive strategy aimed at alleviating their concern over the negative effects of hospitalization on children. Similar numbers of mothers did/would visit and stay with their child for most of the day during hospitalization.
- (iv) In seeking help for gastroenteritis hospital care mothers acted more rapidly and used less routine medical services (i.e. home, and late night, visits) than home care counterparts. Similar numbers of mothers in both groups knew that oral rehydration was the treatment for gastroenteritis.
- (v) General attitudes to pregnancy and birth experiences of both families were similar. After birth, however, breast feeding and immunization levels were significantly higher for home care families.
- (vi) Previous child care experience was significantly higher for hospital care mothers while prenatal class attendance and reading child care information were higher for home care groups.

- (vii) Child temperament, child management, attitudes to child care and help from fathers with child care tasks were the same for hospital and home care groups.
- (viii) The marital status of both groups was similar but the hospital care group was younger, less well educated, of lower occupational status, more likely to be unemployed and unemployed for longer periods and to have larger families.
- (ix) General material circumstances and neighbourhood facilities/ services of hospital care families were poorer than for home care families.
- (x) General marital and family environment measures were similar for both groups of families with the exception that levels of friction/irritability were higher in hospital care families.
- (xi) Health behaviour and attitudes but not health status differentiated hospital and home care families. Home care families had a higher level of healthy behaviour and more positive attitudes to health.
- (xii) On measures of psychological health, hospital care mothers were significantly more distressed generally than their home care counterparts or a GP population sample.
- (xiii) Interviewer ratings found gastroenteritis handling, general parenting, family health orientation and family hygiene levels to be poorer for the hospital care group. Meanwhile, no differences existed between groups on ratings of family stress, maternal confidence, marriage, depression, anxiety and hypochondriasis.

RECOMMENDATIONS

- (1) To provide clear gastroenteritis management instructions on a leaflet for distribution by doctors during a gastroenteritis consultation. This should be aimed at decreasing maternal anxiety and increasing compliance with specific instructions.
- (2) To provide outpatient facilities as an intermediary between General Practitioner/Casualty Department management and inpatient treatment of gastroenteritis.
- (3) To educate medical staff about the non-medical factors (such as sensitization) which influence their management decisions.
- (4) To provide adequate opportunities for social contact to young families via social policies and provisions.

SECTION 1

INTRODUCTION

SECTION 1: INTRODUCTION

1.1 INTRODUCTION

Acute gastroenteritis is a serious health problem of children on a global scale. Defined as a:

"clinical syndrome of diarrhoea/vomiting of acute onset, often accompanied by fever and constitutional disturbance, which is of infective origin and is not secondary to some primary disease process outside the alimentary tract".

(Walker-Smith, (1978)

It is estimated to be responsible for 5-18 million infant deaths yearly in Third World countries (Rhode and Northrup, 1976). Deaths in developed countries are very much less common, e.g. 132 babies under one year in England/Wales in 1978, and 15 in Ireland (Fitzgerald, Kearney, Mahony, O'Halloran and Barry, 1982). Yet gastroenteritis is among the ten leading causes of childhood death in developed countries (cf. Tarlow, 1981). Furthermore it is second only to respiratory disease as a cause of non-surgical paediatric hospitalization in developed countries (Vaughan, 1976). The main source of infection in developed countries is the Rotavirus (Uhnnoo, Olding-Stenkvis and Kreuger, 1986) which was first discovered in the early 1970s. The increased incidence of gastroenteritis during the winter months is accounted for by the increased action of this virus at this time (Kapikian, Kim, Wyatt, Cline, Arrobio, Brandt, Rodriguex, Sack, Chanock and Parrott, 1976).

The main clinical problem with gastroenteritis is dehydration, evident from sunken eyes and fontanelle, loss of skin turgor and drying lips. At the extreme this may lead to hypernatraemia (an excess of sodium in the body which cannot be excreted due to lack of fluid transport).

This can precipitate neurological damage and death. Hence the main aim of treatment is to maintain a fluid and electrolyte balance in the body. This is achieved by taking the child off non-human milk products which contain lactose levels sufficient to aggravate the alimentary canal causing further fluid loss through diarrhoea. Instead oral fluids are at frequent intervals to balance those lost through vomiting and diarrhoea. Soft drinks are often used effectively in mild cases of dehydration while more persistent cases may need a glucose - electrolyte solution of which there are now a number of proprietary brandnames readily available without prescription at chemists. The introduction of these solutions, termed oral replacement therapy (ORT), has revolutionized the care of gastroenteritis in recent decades. Routinely children are treated with oral fluids only for periods of 24-48 hours; milk and solids are then gradually re-introduced over two to three days, a process called regrading. The treatment of gastroenteritis with drugs is not now recommended. Antibiotics, the most widely used drug type, are now seen to be ineffective since most cases of gastroenteritis are not bacterial (e.g. only 4% and 16% in studies by Morrisson and Little, 1981 and Ellis, Watson and Mandal, 1984 respectively). Furthermore, antibiotics have no effects on the clinical course of gastroenteritis and may even prolong the diarrhoea in some cases (Mandal, Fry and Frazer, 1985). Neither have antimotility drugs been seen to be beneficial in treating gastroenteritis (Mandal, 1981). Children who have become dehydrated and for whom this process is not being reversed by ORT, often because of vomiting or refusal to drink, may need intravenous fluid therapy (IV). This is always provided in a hospital context. However, IV treatment is necessary for only a small proportion of children. As Booth and Cutting (1984) suggest:

"probably less than 5% of those who are severely dehydrated, and those with intractable vomiting, require intravenous therapy". (p. 353)

Tarlow's (1981) estimate is less than 10%. The numbers of children in various studies who were treated intravenously vary from 3% (Ironsides, Tuxford and Heyworth, 1970), 7% (Ellis, Watson, Mandal, Dunbar and Moraski, 1984), 17% (Morrison and Little, 1981), 28% (Tripp, Wilmers and Wharton, 1977) to 33% (Uhnnoo et al., 1986). The latter two studies mention the use of out-patient departments for the less severely ill patients thus highlighting the fact that IV usage values represent a combination of severity levels of gastroenteritis and the severity of hospital admission policies. Hospital admission itself is only recommended in about 10% of cases seen by GPs according to Wheatley (1968). At one rehydration centre Khattab (1987) estimated that only 4% of attendances need hospitalization. Thus, as with other illnesses, hospitalization represents the tip of the symptom iceberg in gastroenteritis. In a longitudinal national study of over 13,000 British children in the early 1970s, 2.7% were admitted to hospital for gastroenteritis at least once in their first five years, 1.5% in the first year alone (Taylor, Wadsworth, Golding and Butler, 1982).

Are the large numbers of hospitalizations for gastroenteritis actually necessary for an acute illness not requiring specialized medical skills for its curtailment? Duffy, Byers, Riepenhoff-Talty, La Scolea, Zieleszy and Ogra (1986) report on the self-limiting nature of Rotavirus gastroenteritis (four to six days) and Uhnnoo et al. (1986) report the same figure (median five days) irrespective of in or out-patient status. As Morrison and Little (1981) point out, cases seen in hospital presumably are the worst cases seen by GPs, yet 83% recovered quickly on ORT in their study; a full 29% well enough to be discharged home within twenty-four hours.

A close examination of hospitalization information suggests a decreasing severity of gastroenteritis of late. Tripp et al. (1977) compare their incidence of hypernatraemia and of convulsions with those of previous studies and conclude a declining incidence. Pullen, Dellagrainmatikas and Steiner

(1977) examine the incidence of severe dehydration and hypernatraemia within a single unit over five years and show a dramatic decrease in levels. Ellis et al. (1984) also compare a single unit in 1967 and 1982 and compile four studies of 1967, 1971-1972, 1971-1975 and 1982 showing decreases in a variety of severity indicators of gastroenteritis. Interestingly for the 1971-1975 study (Pullen et al., 1977) and the Ellis study of 1982, 62% and 52% of children respectively had pre-admission symptoms of three days or more which suggests that a greater proportion of children were admitted earlier to hospital in 1982. Such data is not available for the other studies. Ellis et al. also comment on a 67% increase in gastroenteritis hospitalization in the Greater Manchester area in the years 1976-1981 despite no increase in birth rate. They suggest that doctors who are now vocationally trained in paediatrics may be more sensitized to the possibly negative consequences of gastroenteritis from their educational experiences.

Numbers of Children Hospitalized for Gastroenteritis

In one service, for the winter period, 3% of non-planned acute medical admissions, i.e. through Casualty, from GPs or emergency services are for gastroenteritis. Five per cent (5%) of admissions directly from parents are for gastroenteritis (Wynne and Hull, 1977). In the same study 9% (from medical sources) and 22% (from parents) of admissions were primarily for social reasons with disease symptoms providing the excuse rather than the reason for admission. Another study over a whole year found that 16% of all admissions under one year old were for gastroenteritis infections (Lloyd et al., 1981): gastroenteritis was second only to respiratory tract infections (25%) as the major disease category in admissions for this age group. Gastroenteritis also accounts for 11% of all repeat admissions and in this study some 6% of children were hospitalized for social reasons only.

GASTROENTERITIS - GENERAL PRACTICE

Whitehouse and Hodgkin (1985) found that gastroenteritis accounted for 1.4% of all general practice consultations. One general practice study of infants less than six months old over a winter period showed that 20% of consultations were for gastroenteritis and two of the five hospital admissions in the period were for dehydration (Wright et al., 1987). For infants less than six weeks old non-routine visits to an out-patient maternity hospital unit also may show levels of gastroenteritis or gastroenteritis-like symptoms. Twelve per cent (12%) of attenders were there for vomiting and/or diarrhoea and 8% for poor feeding (Curtis, Clarke and Matthews, 1987). Seventy-nine per cent (79%) of those with vomiting/diarrhoea were sent home on Dioralyte (ORT) or dilute feeds; the remainder were reassured.

Another way of presenting the levels of gastroenteritis in the community is that 54% of babies have one or more accident or diarrhoea/vomiting in the first year and 2.4% of these are admitted to hospital (Eaton-Evans and Dugdale, 1987). It is difficult to estimate the level of gastroenteritis in the community which never reaches the doctor. However, parallels can be drawn from surveys of general infant symptomatology. A Sheffield study showed that 2% of babies will have two medical symptoms in any one day and about half of these will be seen by a GP; about one in twelve babies with any symptoms see a doctor (Lloyd, Pursall and Emery, 1981). This corresponds well with Wheatley's (1968) estimate that only about 10% of gastroenteritis is seen by GPs. Mayall (1986) also found a high level of gastro-intestinal problems in young children over a three month period (17% of all medical conditions in that period). It ranked second in severity to respiratory tract infections plus ear infections (14%), and 61 of 135 children suffered gastrointestinal symptoms. Thus, almost one of every two children had gastrointestinal symptoms in the three month period studied.

At the level of prevention of gastroenteritis, breastfeeding has been advocated as of primary importance and this issue is now considered below.

Breastfeeding and Gastroenteritis

Some writers attribute great significance to the benefits of breastfeeding in the context of gastroenteritis. A British Medical Journal Editorial (1977) stresses the 'supreme importance of breastfeeding' in the prevalence of gastroenteritis while an Irish article commented that there was:-

"little doubt that most of our infants owed their admission to hospital to being deprived of the immunoglobulins and the other protective substances present in human milk." (p. 156)

Fitzgerald et al., (1982)

However, there is a need to separate clearly the benefits of breastfeeding and that of social class since breastfeeding occurs so often with accompanying beneficial environments. Eaton-Evans and Dugdale (1987) in Australia found no differences in diarrhoea/vomiting for the four age quarters to one year old by social class or by type of feeding. Within the three to six month group lower social class groupings who bottle-fed did have significantly more diarrhoea/vomiting than their upper class bottle-feeding counterparts. Under six months old breast and mixed bottle-feeding versus bottle only was associated with significantly fewer incidences of diarrhoea/vomiting but from six to twelve months old there was no effect. Thus they summarize that for early groups only:-

"the absence of breast milk influenced the incidence of diarrhoea/vomiting and the presence of other milks did not". (p. 448)

Another study of Rotavirus-induced gastroenteritis reported similar incidences for breast- and bottle-fed babies - 20% and 19%, (Duffy et al., 1986). However, the clinical course was better for breast-fed babies; 90% of them rated as having mild illness while only 36% of bottle-fed babies fell into this category. A third study showed that controlling for social indices reduced the relationship between breastfeeding and gastroenteritis admissions from a significance of $p = .001$ to $p = .08$ (Taylor et al., 1982). They concluded that the effects of breastfeeding were more beneficial in 'less sterile' environments. These three studies do provide some evidence for the value of breastfeeding in counteracting gastroenteritis but also illustrate that breastfeeding cannot be seen to be a wonder solution to the problem of gastroenteritis.

In summary, gastroenteritis is a very common disorder of infancy which in the main is mild and self-limiting. It can be, and is generally, managed at home with minimal medical expertise and supervision. Yet it still accounts for a large and increasing number of childhood hospitalizations and this despite more widely available home oral rehydration solutions now. This fact is disturbing from a financial point of view, especially in these times of decreases in health services budgets, and more importantly because of evidence of the detrimental impact of hospitalization on young children. A brief discussion of both*these factors follows.

Financial Implications of Gastroenteritis Management

The cost factor is relatively self-evident. To make comparisons, a hospital day in the infectious diseases hospital under study costs the State approximately £80 (hospital administration, personal communication). Surgery visits during working hours for General Medical Services (GMS) patients cost the State £3.85 or at the most £10.86 if between midnight and 8.00 a.m. Home visits for

gastroenteritis to GMS patients cost the State between £5.70 and £14.60 for most urban dwellers who live within three miles of their doctor.

Since average hospital stays for gastroenteritis under two years of age in Ireland are 10.2 days (Health Research Board, personal communication), the average cost of such hospitalizations using this hospital's estimates is £816 plus the cost of the call or calls to a referring agent (i.e. doctor or Casualty Department). Even in the extreme of two daily house calls (one in the day time and one in the evening) for ten days to a patient remote from the doctor's surgery (i.e. more than ten miles away) the cost to the State (£352) would be less than half that of hospitalization . These costs do not even consider the expense to families of having a child in hospital in terms of travel, effort and work time lost (often a cost to the State also).

The second disturbing factor about the large numbers of gastroenteritis admissions, as mentioned earlier, is evidence of the negative effects of hospitalization on young children. This evidence is now summarized.

1.2. THE EFFECTS OF HOSPITALIZATION ON YOUNG CHILDREN

Widespread attention was first drawn to the impact of hospitalization on young children by the publication of James Robertson's "Young Children in Hospital" in 1958. This was followed in 1959 by the Platt Report - An English Ministry of Health report on the welfare of children in hospital. Both of these documents emphasized the negative consequences of hospitalization on young children and stressed the need to minimize such hospitalization. Where hospitalization was necessary they stressed the importance of allowing and encouraging unrestricted parental visiting and the provision of facilities for parents to stay in hospital. These recommendations were made in an era where parents were allowed little access to children in hospital (often only one weekly visit) and where the opinion was prevalent that hospital visiting merely upset children and parents alike and was thus not to be encouraged. Around this time a research study by Prugh, Staub, Sands, Kirschbaum and Lenihan (1953) showed the impact of hospitalization on children under restricted visiting regulations (one weekly visit of two hours) by comparing these children with children hospitalized after the introduction of an 'experimental' type of ward nursing practice. This latter was in effect a significantly more child-centred approach involving daily visiting, a nursery school teacher providing a play programme and psychological preparation for and support during difficult medical procedures. During, and immediately following, hospitalization 92% of the traditionally treated children versus 68% of the child-centred category showed significant disturbances in behaviour not present prior to hospitalization ($p < .01$). Three months later these figures had decreased to 58 and 44% respectively. Across a range of types of disturbances during hospitalization (such as restlessness, aggression and feeding disturbances) withdrawal was the category of disturbance most influenced by type of visiting with more than twice the number of children under restricted visiting being withdrawn. Anxiety was the most common disturbance for both groups,

yet here also both incidence and intensity of anxiety were lower for the child-centred visiting approach. Besides the direct benefits to children of unrestricted visiting opportunities, this new type of policy may have encouraged in parents an increased appreciation of the benefits of visiting their children since 20% of the restricted visiting group in contrast to 8% of the child-centred group never visited their children in hospital. Another study (Douglas, 1975) involving a national cohort of children (the British National Cohort, 1946) and their first five years' hospitalizations reflects similar findings. Forty-seven per cent (47%) were allowed no visitors at all and only 16% were allowed unrestricted visiting. Unrestricted visiting resulted in fewer behaviour problems on returning home from hospital and this was most noticeable when children were hospitalized for more than one month; 25% of those having unrestricted visiting facilities in comparison with 50% of those where no visiting was allowed, had behaviour problems on discharge.

Attitudes and practices have changed considerably since that time with, for example 61% of Irish hospitals having unrestricted visiting (i.e. more than eight hours daily) and 42% having some general facility for overnight parental accommodation by 1976 (Cleary and O'Hare, 1978). This is not to say that the situation is now ideal since for instance some 13% of children were accommodated in adult beds in Ireland in 1976 (Cleary and O'Hare, 1978) and approximately one quarter in the U.K. in the early 1980s (Tyrell, 1985).

However, more recent studies of the effects of hospitalization on young children are now considered in the light of changing policies in the child's environment in hospital. A number of questions punctuate the research findings - Is hospitalization per se responsible for differences in children's concurrent and later behaviour? What are the main observed differences in behaviour? Do demographic and social factors such as age, social class and family discord influence the impact of hospitalization on children?

The first and most fundamental question in this area is whether hospitalization in and of itself produces changes in children's behaviour. Two issues are involved:-

- (a) Do hospitalized children differ from non-hospitalized counterparts? and
- (b) Can differences be attributed to the experience of hospitalization itself?

The study by Douglas (1975), based on a national cohort, provides an ideal opportunity to examine hospitalized children in relation to their non-hospitalized peers. Comparing children having no hospitalizations in their first five years with those having short (i.e. less than one month) admissions and those having long or repeat admissions illustrates that on all four behaviour dimensions assessed (see Table 1.1) long or repeated hospitalization has significant detrimental effects on children into adolescence, over ten years after the event itself.

Table 1.1 Adverse ratings in adolescence related to history of hospital admissions before five years of age

Hospital admissions 0 - 5 years	Troublesome	Poor Reader	Delinquent	Unstable Job
None	14.7	13.9	11.7	14.2
Short	16.9	12.3	11.7	17.0
long or repeated	20.6***	18.9**	17.3*	19.3*

* P .05
 ** P .02
 *** P .01

Reprinted from Douglas (1976).

There are no significant long term differences in those who experience one or no hospitalizations in this 0-5 year old age period. Another large random community sample studied allows a comparison of young children with zero, one or multiple hospitalizations (Quinton and Rutter, 1976).

These children were born in 1959 and 1960, some thirteen years or more after the Douglas sample. Single admissions under five years of age did not result in increased emotional or conduct disturbances over those children with no admissions. However multiple admissions differed significantly from both these groups on emotional disturbance (teachers' ratings) and on both emotional and conduct disturbance (parents' ratings) at age ten. Thus, for young children hospitalized over a decade apart and using different methods of assessing disturbance, there emerges a strikingly similar picture of prolonged or repeated early hospitalization being responsible for disturbances of behaviour into the second decade of these children's lives. These studies also show that short single stays in hospital do not have any appreciable impact on the later behaviour of children.

It is possible that hospitalization may be a concomitant rather than a cause of later problems of behaviour. For instance families with multiple problems are more likely to have had experiences of early childhood hospitalization (Douglas, 1975; Earthowl and Stacey, 1977) and rehospitalization (Quinton and Rutter, 1976). However, Quinton and Rutter showed that multiple admissions to hospital are still linked to emotional disturbance when family disadvantage had been controlled for in their study. Single hospitalizations did not have lasting effects for any social group. Similarly Douglas (1975) assessed mothers' care and management of their child at four and the general cleanliness of child and home at six. The relationship between early hospitalization and adolescent disturbances still persisted when these influences were controlled for.

The impact of the illness in itself might also be a factor predisposing to subsequent behaviour problems for children, a factor possibly confounded with hospitalization. However, Mrazek (1984) showed that severely asthmatic young children with multiple hospitalizations did have increased behaviour problems, and non-compliance over equally severely ill children without such hospital experience.

Accepting that long or repeated hospitalization does have an influence on children in and of itself, the next issue is the type of influences which it has. There are many ways to characterize such influences. Prugh et al. (1953) provided a list of eleven common disturbances during hospitalization, anxiety being the most common, followed by feeding and toileting problems, then irritability and restlessness. Vernon, Schulman and Foley (1966) factor analyzed responses on twenty-eight items taken from pertinent behaviours in six previous studies and produced six general factors; general anxiety and regression, separation anxiety, sleep anxiety, eating disturbance, aggression towards authority and apathy-withdrawal. The single most important factor was separation anxiety. Douglas (1975) found children to be more nervous (28%), more difficult (24%) and to have more sleep problems (9%) on hospital discharge. He also examined ratings of being troublesome, a poor reader, delinquent and having an unstable job in adolescence and found a variety of changes as was discussed earlier. Finally Brown (1979), again by factor analysis on data from a widespread of research information and methodologies, summarized three dimensions of response to hospitalization - withdrawal, mobility and distress.

Not all changes in children's behaviour following hospitalization are negative. Brown (1979) presents evidence of improvement in the behaviour of children following surgery and in Douglas's (1975) study some 10% of children were seen as having improved in behaviour on return from hospital. However, the overall picture is of negative consequences with for instance estimates calculated from Douglas's findings on Table 1.1 showing that long or repeated hospitalizations resulted in a 48% increase in recorded delinquency at adolescence over non-hospitalized or single short-stay hospitalized peers. Estimates of Quinton and Rutter (1976) indicate that 4.3% of the child population experience multiple hospitalization, and 40% of children with repeated

hospitalization show disturbances of behaviour in later childhood. Thus some 1.7% of the total child population show disturbances which have arisen from repeated admissions to hospital.

Factors Which Influence the Impact of Hospitalization

A number of factors might plausibly influence the impact of hospitalization on children. A major contender is age. The early study by Prugh et al (1953) examined children aged two to twelve. Those aged two and three showed the highest incidence of severe reactions to hospital with decreases with increasing age of children. Also the 'experimental' or unrestricted visiting schedule had its most beneficial effect on older children. Thirty-seven per cent (37%) of two and three year olds still had severe reactions to hospital despite frequent visiting and child centred activities (versus 50% of controls). Vernon et al.'s (1966) study covers a wider range of ages (0-16 years). Their factor analyses indicate a curvilinear relationship between changes following hospitalization and age with the age six months up to four years being the most negatively affected, ages four and five are next, then those less than six months old and then six to eight year olds. The 9-16 year age group actually benefited from hospitalization. This overall pattern was most clearly shown in the separation anxiety factor. Douglas (1975) also presents his data in a way that shows clearly the influence of age in years to age five. For single admissions of less than one month duration, each of his adolescent measurement dimensions - troublesome, poor reading, delinquency and unstable job - was highest for those children hospitalized before two years old. Only 'unstable job' appears to be influenced by hospitalizations of over one week in children under six months old. Scaffer and Callender (1959) compared children hospitalized under six months old with those hospitalized from six months to one year of age and they found hospital to have a later impact only on children over six months old. There appears to be an acceptance that hospitalization under six months

old is not generally detrimental to children (cf. Douglas 1976: Mrazak (1984)), information which corresponds to the finding that separation anxiety begins only after this period (Emde, Gaensbauer and Harmon, 1976). However, Prugh in 1976 contended that no adequate study had yet been made of children under six months old. Mrazak himself pointed out that asthmatic children in his sample who were hospitalized during the first six months of life had significantly more subdued and passive styles of interaction in the pre-school years than had asthmatic children with later hospital stays, a finding he felt was some cause for clinical concern. At present the evidence is insufficient to make definitive statements about hospitalization of those under six months old. However, it is quite clear that children from six months to four years, i.e. the pre-school years, are at greatest risk from hospitalization. This evidence is plausibly explained by a number of psychological perspectives on child development as Mrazek (1984) outlines. The fact that Douglas' (1975) study is the most comprehensive to date (and is subsequently verified by that of Quinton and Rutter, 1976) and the fact that this study illustrates that higher percentages of under twos are at long term risk than two to five year olds from hospitalization is of special concern for this particular project. This is so because, as already mentioned, the majority of the population hospitalized for gastroenteritis are under two years old.

No sex differences in the effects of hospitalization on children have been found (Douglas, 1975; Vernon et al., 1966). Other risk or vulnerability factors for the effects of hospitalization which have been described are: relatively unsatisfying relationships with parents; very severe stress in hospital (Prugh et al., 1953); dependency on mother; stress to the child at home on admission (Douglas, 1975); disadvantaged homes (Quinton and Rutter, 1976); little previous experience of separation; anxious mothers; only and youngest children and extended family households (Stacey, Dearden, Robinson and Pill, 1970). It is ironic that children from disadvantaged homes, who have

a greater likelihood of being admitted to hospital as described earlier, are also those for whom hospitalization in itself is most damaging. In Quinton and Rutter's (1976) words:-

"repeated hospital admission was eight times as common in emotionally disturbed children from homes with high psychosocial disadvantage but only three times as common in those from more favoured homes". (p. 455)

Given the damaging effects of hospitalization as outlined above, the question now arises as to how these effects can be lessened or eradicated.

Detrimental Effects of Hospitalization: Prevention

One simple answer to the detrimental impact of hospitalization on a community-wide level is to decrease the number of childhood hospitalizations and the other on a secondary level, is to change the hospital environment to better suit young children for whom hospitalization is absolutely necessary.

Decreasing Hospitalization

As Prugh (1976) suggests, many children are admitted to hospital for non-medical reasons and thus for lack of appropriate services. It has been estimated for instance that over one third of hospitalizations for acute illnesses in pre-schoolers could safely be managed at home (Field and Miller, 1969).

There is also evidence that childhood hospitalization is increasing rather than decreasing in frequency. Information from the three national cohort studies in England show admission rates of 18% before age five in 1946 (Douglas and Blomfield, 1958), 45% before age seven in 1958 (Davie, Butler and Goldstein, 1972) and 26% before age five in 1970 (Golding and Haslum, 1986). Douglas (1975) presents information on the offspring of his initial cohort

sample and over an eighteen year period (1946-1964) there is evidence that early childhood admissions were increasing with time in this group (11% in 1946 versus 19% in 1964). Furthermore, although overall length of hospital stay had decreased considerably in that time, the proportion of children experiencing long or repeated admissions is no less and may actually be greater in recent times (7 versus 9%). This same trend of increased hospitalization in the past decades has also been commented on in the Irish situation by Barry and O'Halloran (1977). In Ireland in 1984 the Hospital In-patient Enquiry Scheme (HIPE), with an 85% hospital coverage, recorded 16,822 hospitalizations for children under one and 9,078 for those aged one to two, a total of 25,900 child admissions in a population of just over 131,000 such children (Health Research Board, personal communication).

Changing the Hospital Environment

Changing the hospital environment is also very powerful in changing its impact on young children. Prugh et al.'s, (1953) early study showed the benefits of a more child-centred hospital policy with extended visiting times, etc., as outlined earlier. Appointing a single nurse as the main hospital contact person for each child was also shown to be effective in reducing anxiety and increasing co-operation over standard nursing care in a study by Visintainer and Wolfer (1975). Another option is to admit a parent to hospital with a sick child. This reduced post hospital disturbances after tonsillectomy in a study by Brain and Maclay (1968). The influence of parents on their children in hospital was the focus of an experimental study around childhood surgery by Skipper and Leonard (1968). They compared regular nursing care for parents (which included moderate amounts of information) with nursing care in which the nurse spent an extra five minutes with mothers at admission to discuss their feelings and provide information if needed. Nurses also met these mothers later on admission day, before the child returned from theatre, the evening after the operation and on the occasion of

discharge. The children (aged three to nine) whose mothers were given extra attention had lower blood pressure levels before and after surgery and at discharge and were less psychologically distressed as measured by other indices such as vomiting and voiding. These children also vomited less and recovered more rapidly at home in the week following surgery. Thus an intervention aimed at alleviating the anxieties of mothers had a direct bearing on their child's physical health and recovery from surgery.

The present study aims to provide a better understanding of the reasons for hospitalization of young children with gastroenteritis with a view to finding appropriate methods of safely decreasing such hospitalizations.

The decision to hospitalize a child for gastroenteritis involves the activities of both parents and doctors. Thus, the situation needs to be addressed from the viewpoint of both parties to fully understand how decisions on the management of gastroenteritis are taken.

The plan of the study was to select a geographical area from which hospitalizations for gastroenteritis could be investigated by interviewing:-

- (a) doctors responsible for the management of gastroenteritis in children from the area;
- (b) mothers of young children from the area who had children hospitalized during the study period; and
- (c) mothers of young children from the area who used medical services, excluding hospitalization, for childhood gastroenteritis in the same period.

1.3 BACKGROUND TO THE PRESENT STUDY - THE PROBLEM OF CHILDHOOD GASTROENTERITIS IN IRELAND

The problem of gastroenteritis was drawn to the attention of one of the authors (MF) by the clinical observation of a history of hospitalization for gastroenteritis in many young children attending an urban child psychiatry clinic. Similar observations were made by Douglas (1975) in his major analysis of hospital admissions in England.

Two recent Irish studies (Barry and O'Halloran, 1977 and Fitzgerald, O'Halloran, Kearney, Barry and O'Mahony, 1982) have quantified the problem of hospitalization for gastroenteritis. They documented trends in the management of gastroenteritis in the major treatment centre in the South-West of Ireland over a thirteen year period (1965-1978). These trends indicated cause for concern.

Barry and O'Halloran's (1977) initial article illustrated that a 97% increase in gastroenteritis admissions of children under one had occurred in Cork between 1965 and 1972 alongside an 8% increase in birth rate. They concluded that the doubling of admission figures was due to the admission of many less seriously ill babies in 1972 rather than an increase in the incidence of severity of gastroenteritis. They came to this conclusion for a number of reasons:-

- (a) the numbers of children needing IV treatment and the numbers of deaths remained approximately the same;
- (b) length of stay was much shorter in 1982 without changes in the consultant or in gastroenteritis management in that period; and
- (c) older infants formed a higher proportion of 1972 admissions.

Two major features of concern emerged from the study. Firstly, the fact that the incidence of severe gastroenteritis and mortality had remained relatively stable despite increases in material standards and in child care training for mothers over the time period gives cause for worry. Secondly, the authors reported the impression that more parents were anxious to have their children hospitalized for gastroenteritis in the latter year. Actually increases in hospitalizations from 1965-1972 were accounted for by the relative increase in the number of babies from the higher social classes. The authors suggested education in methods of infant feeding with particular emphasis on breast-feeding and the provision of an out-patient service at the hospital were the most fruitful methods of tackling the problem.

The same team report on the efficiency of such methods six years later (Fitzgerald et al., 1982). Numbers of admissions decreased by 26% from 417 to 309 in that period (1972-1978) accompanied by shorter hospital stays; for instance 24% of infants were discharged within one week in 1972 in comparison with 47% in 1978. This substantial improvement was credited mainly to the setting up of a gastroenteritis out-patient clinic in the hospital in 1974 which allowed:-

- (a) doctors to refer babies to the clinic rather than directly for admission;
- (b) allowed the hospital to safely discharge children earlier from the ward with clinic follow-up; and
- (c) gave medical and nursing staff the opportunity to instruct mothers in feeding and hygiene skills.

Some 22% of those referred to St. Finbarr's in 1978 were treated in this out-patient clinic. In parallel to these findings breast-feeding increased in the area from 2-23% in that period.

Despite the positive impact of the out-patient clinic on the management of gastroenteritis, reasons for concern are still in evidence. Firstly, the overall numbers of children referred to the hospital had not changed from 1972 to 1978 (N = 357 and 355) thus indicating the same reliance on hospital care (albeit now partly out-patient) over the period studied. Furthermore, the numbers of babies requiring IV in 1972 and 1978 were twenty eight and thirty eight respectively or 2.7 and 3.5% of the infant population at risk in these years. Thus severity of the illness, and by definition pre-hospital management had not improved over this period.

As the authors state:

"there still remains an apparent reluctance on the part of some family doctors and some mothers to look after babies suffering from diarrhoea in the home." (p. 157)

Fitzgerald et al., (1982)

Thus while the hospital services had improved their management of gastroenteritis in the period outlined, pre-hospital (i.e. GP and family) handling of the problem had not changed. Hence it is at these levels that further efforts are required if one is aiming to reduce the necessity for hospital service usage for gastroenteritis. This aim corresponds to Department of Health policy as outlined in the recent "Health - The Wider Dimensions" (1986) document. This calls for a focus on preventative services and on the management of health problems at the lowest level of complexity. Thus gastroenteritis as an acute and self-limiting infectious disease should be tackled at a preventative and home management level. This study is an attempt to provide the knowledge base for such prevention and home management initiatives.

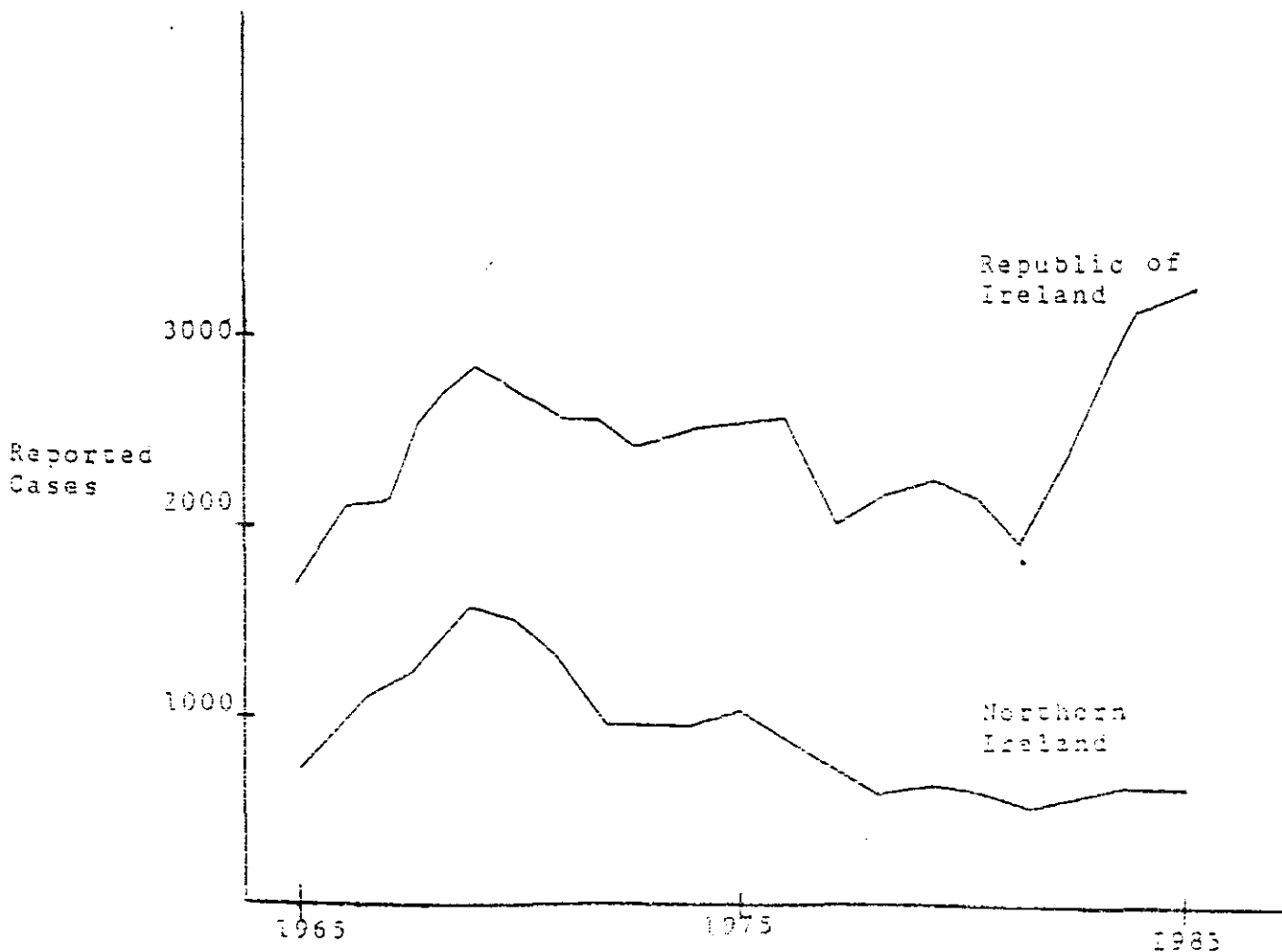
Before outlining the study the size of the problem on a countrywide basis is described.

The Problem of Gastroenteritis in Ireland

Because a major proportion of those hospitalized for gastroenteritis are children under two (49%; HIPE figure, personal communication) and because gastroenteritis is an infectious disease requiring official notification below this age group in both the Republic and Northern Ireland, the figures are based on the under age two population as is the present study.

The number of notifications of the disease in the Republic and in Northern Ireland for the past twenty years is presented in Figure 1.1. It should be borne in mind that notification rates are a broad picture of the pattern of disease over time rather than exact levels as under-reporting is a common feature of such schemes.

Figure 1.1 Notifications of gastroenteritis in children under 2 for the Republic and Northern Ireland (1965-1985)



However the reported patterns are strikingly similar for both parts of the country, with the exception of the 1980s. This is probably explained by a substantial increase in the reimbursement rate for such reporting in the Republic in the 1980s (personal communication, Department of Health) rather than any real change in the pattern of gastroenteritis in the Republic. The patterns also show a general decrease and levelling off of the incidence of gastroenteritis over the past twenty years.

Hospitalization rates for gastroenteritis have not decreased however in that time period. There are no consistent national sources of information on hospitalizations until the setting up of the Hospital In-Patient Enquiry Scheme in the 1970s. However some earlier reports provide an indication of hospitalization levels through the years since gastroenteritis management would generally be confined to major infectious diseases centres. The 1948 annual report of the then Dublin Fever Hospital in Cork Street indicates an annual range of 22-174 total hospitalizations for gastro-enteritis from 1940-1949 (numbers of children under one ranged from 18-141 in these years). By the mid 1960s the approximate annual intake of under twos for the combined Dublin centres of Cherry Orchard and Vergemont hospitals was 554 (Medical Research Council, undated). The main centre for gastroenteritis management in Cork also saw an increase in admissions from 212 children under one in 1965 to 309 such children in 1978 (Fitzgerald et al., 1982). More recent national (Republic of Ireland) figures are shown in Table 1.2 illustrating that in the 1980s well over 2,000 children under two are hospitalized annually in this country for gastroenteritis.

Table 1.2 Numbers hospitalized for gastroenteritis in the Republic of Ireland

Age Group

	< 1	1 - 2	> 2	Total
1978*	1216	-	-	-
1981	1598	-	-	4311
1982	1916	666	2528	4710
1983	1859	661	2520	5045
1984	1679	550	2229	4689

* cf. Fitzgerald et al., (1982). Other figures from HIPE records.

It appears that the numbers of gastroenteritis admissions for the under twos may have peaked in 1982 and now be on the decline although it is probably too early to make a definite statement on this. Cherry Orchard hospital figures (as the National Infectious Diseases Centre) also show a decrease in admissions for the under two's from 1,658 in 1983, 1,583 (1984), 1,507 (1985) to 1,476 (1986). Despite these promising figures the numbers of young children hospitalized for an illness which only rarely requires hospital technology or medical expertise to manage, represents a serious problem.

Duration of hospital stay over the same period has changed in a direction opposite to the numbers hospitalized. From an average of 34 days hospitalization for the under twos in the mid-sixties (Medical Research Council), hospital stay had decreased dramatically by the 1980s (see Table 1.3).

Table 1.3 Average length of stay (days) in hospital for gastroenteritis

Age Group

	<1	1-2	Total
1981	14.9	-	9.9
1982	14.0	8.5	9.6
1983	12.2	7.8	8.6
1984	11.4	6.6	8.0

Again here there is evidence of continuing decline in length of hospital stay throughout the 1980s. Nonetheless gastroenteritis in the under twos would have cost Cherry Orchard Hospital alone over one million pounds in present day terms for the year 1984. (1,583 children multiplied by eight days average stay multiplied by £80 daily cost).

Attention is now focused on information from the hospital under study.

Hospital Records Analysis

Detailed analysis of hospital admission records was undertaken for the first four months of 1986 to provide further information on the numbers, origins and sources of referral of the population to be studied. A total of 353 children under two were hospitalized in this four month period with a diagnosis of gastroenteritis as the only or main reason for hospital admission. Forty-nine per cent

(49%) of them were from Dublin. The biggest grouping of these (35%) were from Dublin West. There were sixteen children of travellers with no fixed abode, seven of these from the West Dublin area.

Among the admissions from the Dublin area, there was a preponderance of boys (58%) as is typical in gastroenteritis populations. The average age of settled children was 8.1 months and of travelling children 5.4 months. Length of hospital stay was 7.7 days on average for the settled community and 23.1 days for the travelling community. To further emphasise the difference between the two groups settled children went home as early as one day after admission and never later than twenty-seven days while the children of travellers were never discharged less than ten days after admission and one child spent fifty-five days in hospital with acute gastroenteritis.

The hospital does not operate an out-patient department thus hospital attendances come from other sources. Thirty per cent (30%) of patients were 'unbooked' or self-referrals, 33% were from Casualty Departments of children's hospitals, 31% from GPs, 4% from baby clinics in maternity hospitals, 2% from a medical deputizing service and one child from a convalescent home. Twenty-nine per cent (29%) of the seventy-eight GP referrals were made by a total of six doctors with referral numbers ranging from three to seven patients in that four month period. Such figures tentatively suggest different styles of gastroenteritis management.

The hospital admissions analysis provided a number of useful pointers for the construction of the study. Firstly, it provided a time frame within which to estimate the pace with which a sample for study would be available. Secondly, it identified the surrounding hinterland of the hospital as an area with a relatively high usage of the service. A third point it brought to light was multiple referrals from a small number of GPs; this information may be indicative of different approaches to gastroenteritis

management. Fourthly, it illustrated that Casualty Departments of children's hospitals are the source of a considerable number of gastroenteritis referrals and as such are deserving of attention in the study. Finally large differences between the settled and travelling children were observed. A number of factors combined to prompt the decision not to include travelling children in this study:-

- (a) numbers of travelling children hospitalized in the time period available would be very small;
- (b) discussion with doctors suggested that a comparison group of mothers with childhood gastroenteritis managed at home would be very difficult to obtain as most doctors automatically referred travelling children to hospital with this complaint;
- (c) obtaining interviews may have been very difficult because of different value systems and wariness on the part of travellers of official questioning;
- (d) a mobile medical service had recently been introduced to the travelling community with the aim of providing regular local advice and thus providing doctors with the options of regular check-ups rather than immediate hospitalization of at-risk children;
- (e) a health education service on child and family care for travellers was also in preparation, a ten minute video on gastroenteritis being part of the package; and
- (f) a major study of health and welfare of travellers had just commenced in Ireland.

Thus, in all, the problem of gastroenteritis was seen as being different in the travelling community and as being in the process of documentation elsewhere.

From the pointers just mentioned on the appraisal of hospital admission records, the structure of the study took shape.

1.4. THE PRESENT STUDY

Location of the Study

The sample area selected for this study was West Dublin as defined on the Eastern side by postal address numbers 15, 20, 10, 22 and 24 and by the Dublin county border on the West and Southwest area (i.e. including Mulhuddart, Lucan, Newcastle, Rathcoole and Saggart). This geographical area was chosen for a number of reasons:-

- (a) the major infectious diseases hospital under study is geographically located at the centre of this area;
- (b) thirty-five per cent (35%) of the hospital's total gastroenteritis referrals for under two's come from this immediate hinterland; and
- (c) for research purposes it is an extensive and diverse area involving the spectrum of socio-economic neighbourhoods, older and newly developed areas and urban and rural areas.

Study Samples

Doctors: General Practitioner Sample

GPs were randomly selected from a listing of those living and/or practising in the designated area. They were contacted by letter to explain the purpose and plan of the study. This was followed by a telephone call to answer any queries they had and to make an appointment to meet with the interviewer.

Doctors: Hospital Doctor Sample

Hospital Records Analysis showed that two children's hospitals provided most (89%) of the Casualty Department gastroenteritis referrals for the Dublin area contacted for

the study. Both hospitals allowed doctors involved in Casualty Department management of gastroenteritis to take part in the study.

Mothers: Hospital Care Sample

Each child on the admission records of the hospital from January 1st 1987 to March 31st 1987 (a three month period) who fulfilled the following criteria was noted: aged under two years on admission, from the designated area, from the settled community and with an admitting diagnosis of gastroenteritis as the reason, or a major reason, for admission. While subsequent hospital surveillance might change the admitting diagnosis the present policy of selection was felt to be the most appropriate as the study was interested in the management of what was seen to be gastroenteritis by parents and doctors. Also, a 1964-1966 report on gastroenteritis in Dublin city (Medical Research Council of Ireland, undated) used this criterion for inclusion in their study and it was felt that useful comparison could be made between the two studies. Upon selection for inclusion in the study, mothers of children were approached by the interviewer in the hospital if availability and privacy permitted. If this was not possible mothers were contacted in the home on the child's discharge from hospital. The study was introduced as a study of gastroenteritis, a common ailment of young children. It was explained that the study was concerned with the background to the present illness episode and the general life and experiences of the child and his or her family. Mothers were asked if they were willing to participate in the study then or at a time convenient for them.

Mothers: Home Care Sample

Mothers who managed children with gastroenteritis in their own homes were contacted through one of two sources. GPs taking part in the study were asked for permission to contact the mother of a patient under two years who had a

diagnosis of gastroenteritis recently and who had been managed at home. It was stressed that no particular type of patient (e.g. model family or very sick child) was sought, rather their most recent case, if possible, of gastroenteritis in this category. Mothers were then contacted in whatever manner was most acceptable to the GPs (e.g. GP contact, letter or contact by the interviewer). The study was then outlined to them in the same way as to the mothers in the hospital care group.

Home care cases who had used Casualty Department services as part of their management were obtained from the casualty case lists of the two hospitals mentioned. These mothers were then approached in a similar way to the others.

A brief description of the statistical techniques to be used in the present study is now given before the research is outlined in detail.

Statistical Techniques Used in the Study

The statistics used throughout this study have three basic aims. The first aim is to describe the populations under study along various parameters (eg frequency diagrams, mean values).

Secondly, statistics are used to answer the question "are there differences between two groups on a particular parameter?"

Two statistical techniques are used to answer this difference question. Each technique indicates whether or not there is a real (i.e. beyond chance) difference between two groups by testing for the significance of any observed differences. Probabilities of there being a real difference are calculated; probabilities of 5% and less (written $p < .05$) are usually acceptable, ie accepting a verdict of 'difference' with 5/100 chances of being incorrect. Probabilities ($p =$) are quoted throughout the study.

The first assessment-of-difference technique is the student t-test. This is used where study data are in an interval or ratio format (i.e. where values on a scale are rank ordered and at equal distances from each other - two years being equidistant from one and three years). T-test example: is the average age of hospitalised children significantly different from that of children cared for at home?

The second technique for these purposes is the chi-square (χ^2) test. This is used where information is in nominal/categorical format (i.e. numbers assigned to criteria have no rank or relative meaning to each other, but act rather as discrete category labels, e.g. single, married, divorced). Chi-square test example: are children of single, married and divorced women differentially admitted to hospital?

The third aim of the statistics in this study is to answer the question: "What are the relationships between various dimensions being studied?"

The first and most fundamental statistic used to address this question is the correlation coefficient (r). This coefficient expresses the extent to which two variables are related. For instance: "what is the relationship between age of doctor and the number of children hospitalized?" Values of the statistic range from +1.00 to -1.00. Higher absolute values indicate stronger relationships between variables; positive relationships (eg = .63) indicating high scores on one dimension being associated with high scores on the other while negative relationships (eg = -.63) indicating high scores on one dimension being associated with low scores on the other. Values close to zero indicate little or no relationship between two variables. Whether the correlations found actually indicate a significant relationship between two variables can also be calculated and this relationship is provided throughout the study.

Two other statistical techniques, each based on correlation co-efficients, are used to describe study relationships. Multiple regression analysis is a method of assessing the relative influence of two or more independent variables on a dependent variable (eg "what factors determine the number of children referred to hospital by doctors?"). Regression values (r) indicate the percentage of variability of the dependent variable which can be explained by a particular independent variable or by the number of independent variables already in the equation.

Discriminant analysis is a method of discriminating groups from one another on the basis of a number of variables (e.g. "what variables best differentiate hospital and home care families?") As the statistical technique in this study least widely used in current research reports, it is outlined more fully before it is applied in Section 3 of this report.

Having outlined the basic background to the study, the location and the samples interviewed, and the statistical techniques employed, the report now considers in separate sections the more specific background to the study of doctors and of mothers and the findings from both these groups. The section on doctors and their decision making process is discussed first.

SECTION 2

DOCTORS' DECISION-MAKING ON THE MANAGEMENT OF GASTROENTERITIS

SECTION 2

DOCTORS' DECISION-MAKING ON THE MANAGEMENT OF GASTROENTERITIS

2.1 INTRODUCTION

GPs are the first and main contact point between most individuals and the medical care system. Two out of every three people see a GP at least once a year (Anderson, 1972; Tussing, 1985) and some 14% of visits are for minor self-limiting conditions (Whitehouse and Hodgkins, 1985). Following on upper respiratory tract infections and tonsillitis/laryngitis, gastroenteritis is the third largest of this minor self-limiting category comprising 1.4% of all consultations in a year to GPs. To further stress its size as a clinical problem in general practice, there are 73% more GP consultations for gastroenteritis than for influenza. Thus, while being a minor self-limiting illness, gastroenteritis uses a considerable amount of GP time. The factors influencing the decisions of individuals to seek medical care will be addressed in this section of the report. For the moment, the decision making of doctors and influences thereon is considered. The behaviour of doctors is influenced by aspects of their patients and of themselves.

2.2. DECISION MAKING

Decision Making: Effects of Characteristics of Patients on Doctors

A number of studies illustrate the effects of non-medical patient characteristics on management decisions by doctors. Presenting hypothetical scenarios of a standard sore throat consultation with differing social and psychological background information to doctors resulted in a differential prescribing of antibiotics in a study by Howie (1976). Over a range of histories more detailed 'negative' information resulted in antibiotics for 58 versus 36% of cases. From illustrating that social and psychological factors do have an effect on patient management, Whitehouse and Hodgkin (1985) turn their attention to the question of which factors. For minor illnesses age of patient had little influence on prescribing patterns for doctors while there was a slightly higher tendency for those in lower social classes to receive prescriptions. Home visiting was clearly differentiated by social class; those of higher social classes receiving these visits more often. Wynne and Hall (1977) report that over 20% of the unplanned admissions to hospital are made mainly for social reasons, social reasons also being one important factor in many other cases. Again considering the effects of characteristics of patients on doctors behaviour, 33% of referrals to hospital for acute childhood illness in another study were because doctors thought parents could not cope with the symptoms rather than because of the symptoms per se. (Stanton et al., 1980).

Decision Making: Effects of Characteristics of Doctors

Characteristics of doctors themselves have also been seen to influence their management decisions. The influence of characteristics of doctors on patient treatment is most clearly seen in information on hospital referral rates. Starey (1961) found a range of 2 - 17.3 referrals per 100

patients with slightly higher referral rates for doctors in urban areas and/or with large patient lists. Even within a single practice referral rates were found to differ from 1.5 - 2.2 - 2.7 per 100 patients (Morrell, Gage and Robinson, 1977). Patient characteristics of age, sex, social class and disease type did not explain referral variations in the latter study while there was some evidence for fewer referrals by older doctors. Another study by Cummins, Jarman and White (1981) again showed that controlling for practice and patient differences did not eliminate differences in referral rates between doctors. They suggest that the different "referral threshold" of doctors may be a combination of characteristics such as training, experience, tolerance of uncertainty, sense of autonomy and personal enthusiasms. Bourne (1976) reports on an indepth psychoanalytic seminar of GPs which examined the meaning of referrals for different doctors. However, no study to date systematically examines the range of characteristics of doctors which account for differences in referral thresholds.

A number of factors are suggested by individual research reports. Whitehouse and Hodgkin (1985) reported that younger doctors prescribed less medications for minor self-limiting illness. Young age is also associated with increased hospital referral rates in a number of studies (Evans and McBride, 1968 and Morrell et al., 1977) and with less tolerance of diagnostic uncertainty (Walton, 1968).

Longer consultation times are associated with less prescribing (Whitehouse and Hodgkin, 1985) and lower ratios of doctors in a population are associated with increased hospital admissions (Roemer, 1961). These findings suggest that busier doctors may make greater use of medicines and specialist services, possibly as a way of managing time.

Two studies are supportive of an association between a doctor's personal medical interests and professional behaviour. Evans and McBride (1968) illustrate that a doctor with special interests in particular areas of

medicine has higher referral rates than usual to these specialities. Morrell et al (1977) also found this in their group practice study with special interests and postgraduate experience in areas combining with higher referral rates to those areas.

Having considered some of the more obvious and more researched factors which influence a doctor's professional behaviour, attention is now turned to this behaviour. Clinical judgement is the cornerstone of the doctor's professional behaviour.

Clinical Judgement

Clinical judgement and the formation of diagnoses are inexact techniques as are all forms of human judgement. The differing referral rates of doctors to hospitals as already outlined, is one clear attestation to this. Assessing clinical judgement is hampered by the fact that judgement itself is seen as:

"a cognitive activity not directly observable and generally assumed to be recoverable only by (fallible) introspection and 'self-report'." p.127

Hammond and Adelman (1986)

As Neisser (1967) says:

"the very process of thinking aloud alters the content and process of thought."

Clinical judgement is a combination of two distinct phases, one of which is arrival at a particular diagnosis and the other is the use to which that diagnosis is then put. Boshuizen and Claessen (1982) distinguish between research which focuses on the doctors problem (figuring out what is wrong with the patient) and the patients problem (remedying

what is bothering the patient). However most research to date focuses on arrival at a diagnosis, an example being the comprehensive work on "Medical Problem Solving" by Epstein, Sheilman and Sprafka (1978).

As Howie (1976) sees it:

"the recent emphasis on the way in which doctors construct diagnoses...has perhaps been made at the expense of study of how the doctor uses the diagnosis he has made." p.1061

The present study attempts to redress this balance by focusing on the use to which doctors put a diagnosis of gastroenteritis, once made. As mentioned earlier, asking doctors about how they make a clinical judgement on the management of a particular case of gastroenteritis is fraught with difficulty. As Howie (1976) states, the general impression is that:

"clinical judgement in general practice is an art beyond even approximate scientific description and evaluation." p.1061

Howie's work attempts to change this impression. By standarizing the medical problem presented in an experimental study, he illustrated that social and psychological information influence the prescribing of medication. However further research work has not been undertaken in this area.

Using Howie's basic idea of presenting a scenario or 'paper patient' to doctors, the present authors developed a more systematic framework to analyse doctors decision making for this particular study. Firstly, the medical information to be presented to doctors could vary in a number of ways. Next, non-medical information would be combined with medical information in a systematic manner thus allowing analysis of the strength of various factors (medical and non-medical) in coming to a particular decision. Finally,

questions on the management decision were not to be narrowed in any way to focus on particular aspects of management such as prescriptions but were to be left open for doctors to outline fully what they would do in each situation. Thus the options of management of gastroenteritis and the patient factors determining the choice of different options could be scientifically evaluated.

Analysing the management of gastroenteritis as outlined above can only illustrate the relative importance of various patient factors in the decision making and the difference between doctors in their management. Also of importance are the factors related to the doctor which influence decision making and explain differences in doctors. From the factors mentioned earlier and from consideration of gastroenteritis management a number of doctor characteristics emerge for investigation; demographic information, experience and workload and general attitudes to management of gastroenteritis. These factors will be addressed with doctors.

The doctors in this study represent the frontline of gastroenteritis management by the medical profession. Hence their opinions on the most effective methods of tackling the problem of gastroenteritis may be particularly useful for future planning in this area. These opinions were therefore sought in the study.

2.3. METHODOLOGY

Sample

The sample for the doctor's study was derived as described in the general introduction (see p.29). Fifty-seven (57) General Practitioners were contacted for the study, two of whom deemed themselves to be inappropriate candidates because their practices were very small and/or very new. Two were too busy and one was uninterested in cooperating leaving a response rate of 91%.

No individual doctor in the two hospitals involved refused to participate and in all 70 and 83% of the relevant doctors in each hospital were interviewed. Those doctors not seen were those off duty or busy at the time of the interviews, all of which took place in the hospitals themselves during working hours. Full participation was not pursued because of the time constraints on the study. Hospital doctors seen were at the level of consultant, registrar, casualty officer and house officer.

Procedure

Each doctor was presented with a series of cards, each with a scenario about a young child presenting with gastroenteritis symptomatology. These vignettes or 'paper patients' each contained four basic dimensions of information; age of child, presenting medical symptoms, family social background and mothers' reactions to the situation. Dimensions were chosen upon initial discussion with a number of doctors as to those most relevant in management decisions on gastroenteritis. The specific information used (see Appendix 1) allowed the compilation of a range of scenarios; younger or older child (all under two years old), mild to severe medical background, 'mild' to 'severe' social background and calm or anxious maternal reaction. A total of thirty-six different scenarios could be created from the relevant information, i.e. age of child

(x two options), medical background (x 3), social background (x 3) and maternal reaction (x 2). Because of the time constraints on doctors, half of the scenarios (N = 18) were randomly selected for each doctor. This allowed for later systematic investigation of the relative importance of various factors in doctors' decision making. Furthermore two of each set of eighteen cards selected were again drawn at random and duplicates of these two introduced into the set to provide some assessment of the consistency of an individual doctor's decision making. This resulted in twenty cards being presented to each doctor with the instruction to outline his/her course of management in each case. Scenarios were presented to doctors as completed diagnoses, i.e. doctors were told to assume that the child was not suffering from any more serious illness such as meningitis and to consider this as a case which they had decided was of acute gastroenteritis. They were then asked to describe their course of action if they were presented with this particular problem. If necessary questions were asked to elicit if recall requests, where mentioned, were to be by telephone or personal call and whether they were to be contingent on some criterion or not. It was felt that the experimental task presented was an approximate simulation of the real task of GPs where such factors are weighed and decided upon by the doctor in a relatively short space of time.

Initial piloting of the scenarios helped to provide the most useful (i.e. discriminating) values of the four dimensions. Thus for instance extreme medical or social backgrounds were not used as these elicited similar responses from all doctors. Piloting also verified that this was a procedure which doctors found relatively easy and valid to use.

Upon completion of the vignette task doctors were asked a range of questions about their management of, and views on, gastroenteritis and about their work generally (see Appendix 2). Interviews for the study questionnaire took approximately thirty minutes to complete.

2.4. FINDINGS

A total of eighty doctors - fifty-two GPs and twenty-eight hospital doctors - took part. The hospital doctors studied were ten house officers, six casualty officers, eleven registrars and one casualty consultant. As expected GPs were older and had been working longer in medicine than hospital doctors (see Table 2.1). GPs were also more likely to be male and to see themselves as less conservative (i.e. more willing to use their own initiative and avoid hospital referral than colleagues) than did their hospital counterparts. This latter finding reflects in part the fact that many hospital doctors felt themselves to be in training and thus working presently in a situation which encouraged a consensus of opinion rather than independent styles of management.

Table 2.1 Characteristics of GPs and Hospital Doctors

<u>Characteristics</u>	<u>G.P.</u>	<u>Hospital doctor</u>
% over 40 years old	56.0	4.0
years medical experience	14.0	4.1
% female doctors	17.0	32.0
% less conservative	67.0	25.0
% more conservative	9.0	32.0
<hr/>		
N =	52	28

Considering the vignettes presented to doctors, 21% of vignettes would result in hospitalization for the child concerned. Doctors were quite consistent in their treatment of gastroenteritis as information on their twice-rated vignettes showed. Eighty-eight per cent (88%)

provided very similar or identical management descriptions on the duplicate vignettes with only 12% having major changes in their management strategies (e.g. home instead of a hospital management decision).

Considering the total sample of doctors interviewed higher numbers of hospitalizations from vignettes were associated with higher levels of hospitalization from the doctors actual day to day work ($r = .608$, $p < .001$), with worse experiences of gastroenteritis ($r = .292$, $p = .004$), with more severe ratings of gastroenteritis generally ($r = .296$, $p = .004$), with being a younger doctor ($r = -.220$, $p = .025$) and with having fewer patient recalls to surgery ($r = -.303$, $p = .003$).

Education and Experience

With regard to education and experience twenty-two of eighty doctors had some experience of working in the infectious diseases hospital under study and thus of seeing the severity of and hospital management of gastroenteritis firsthand. Doctors with firsthand experience of this situation were significantly more likely to refer children to hospital; referring an average of 5.8 versus 3.1 of eighteen vignette cases to hospital ($p < .02$).

Fifty-six of the doctors had obtained (or were about to) the Diploma in Child Health (DCH). The presence or absence of this qualification did not bear any relationship to the numbers of children hospitalized from study vignettes. In all, older doctors sent less children to hospital than younger counterparts (2.7 vs. 4.5, $p < .05$). Further examination reveals however that this difference is one of hospital versus GP management of gastroenteritis and that within doctor groupings the age differences in referrals exists. The sex of doctors also had no bearing on the numbers of children hospitalized for gastroenteritis. Finally doctors who estimate the effects of hospitalization to be more severe showed a tendency to hospitalize fewer vignette cases ($r = -.175$, $p = .064$).

Attitudes to the Hospitalization of Small Children

While there is this trend of more negative views of hospitalization combining with fewer hospitalizations, views on the effects of hospitalization on small children have no significant relationship to health education attitudes, general estimates and experience of gastroenteritis, patient type, workload, experience of working in the hospital under study, DCH qualification, age, sex and experience of doctors.

Attitudes to Health Education Methods

Attitudes to health education methods are not differentiated by age. Male doctors are more positive than female doctors about the usefulness of mass media advertising ($p < .03$). In the case of GPs, half of the sample worked in single and half in team practice. Numbers of vignette hospitalizations or of practice hospitalization estimates for doctors own practice did not differ by practice size. Those in single practice were more likely to be in private practice ($p = .071$), were less busy in terms of numbers of surgery visits (133 vs. 192, $p < .005$) although not housecalls. Single practice doctors were also in general practice for a shorter time (11.6 vs. 16.3 years, $p < .04$) but were not younger than their counterparts. Their general views of gastroenteritis and their experiences, education and management of gastroenteritis were however similar.

The main findings of the doctors' study are now presented in more detail using the GP/hospital doctor distinction where differences exist in attitudes, methods, etc.

Management of Gastroenteritis: Vignettes

In judging eighteen case histories, GPs had a mean of 2.9 hospitalizations and hospital doctors had 5.5; a difference significant at $p < .01$. Thus hospital doctors would send almost twice as many of these hypothetical cases to hospital.

In total doctors would send 20.6% of gastroenteritis vignettes seen by them to hospital. The overall pattern of hospital referrals for gastroenteritis is presented in Figure 2.1 with corresponding values also provided in Table 2.2. It is clear from this figure that severe medical problems take precedence in hospital admission cases. However, moderate medical problems are only as likely to result in hospitalization as are the better poles of the other three dimensions, i.e. older children, children of experienced mothers and children of calm mothers. Equivalent levels of hospitalization, (approximately one in four), occurred for young children, children of single parents and children of anxious mothers. The figure illustrates that these three dimensions (age, social background and maternal reaction) are equally important to doctors in their general management decisions. It is also evident that social background distinctions here are between single parents and others, there being very little differences (1%) in hospitalization levels of first and fourth children of two parent families. Thus family status (i.e. single/married) rather than experience of parenting appears to be the important dimension here.

Figure 2.1 Overall pattern of hospital referral rates for the four gastroenteritis vignette dimensions (N = 80)

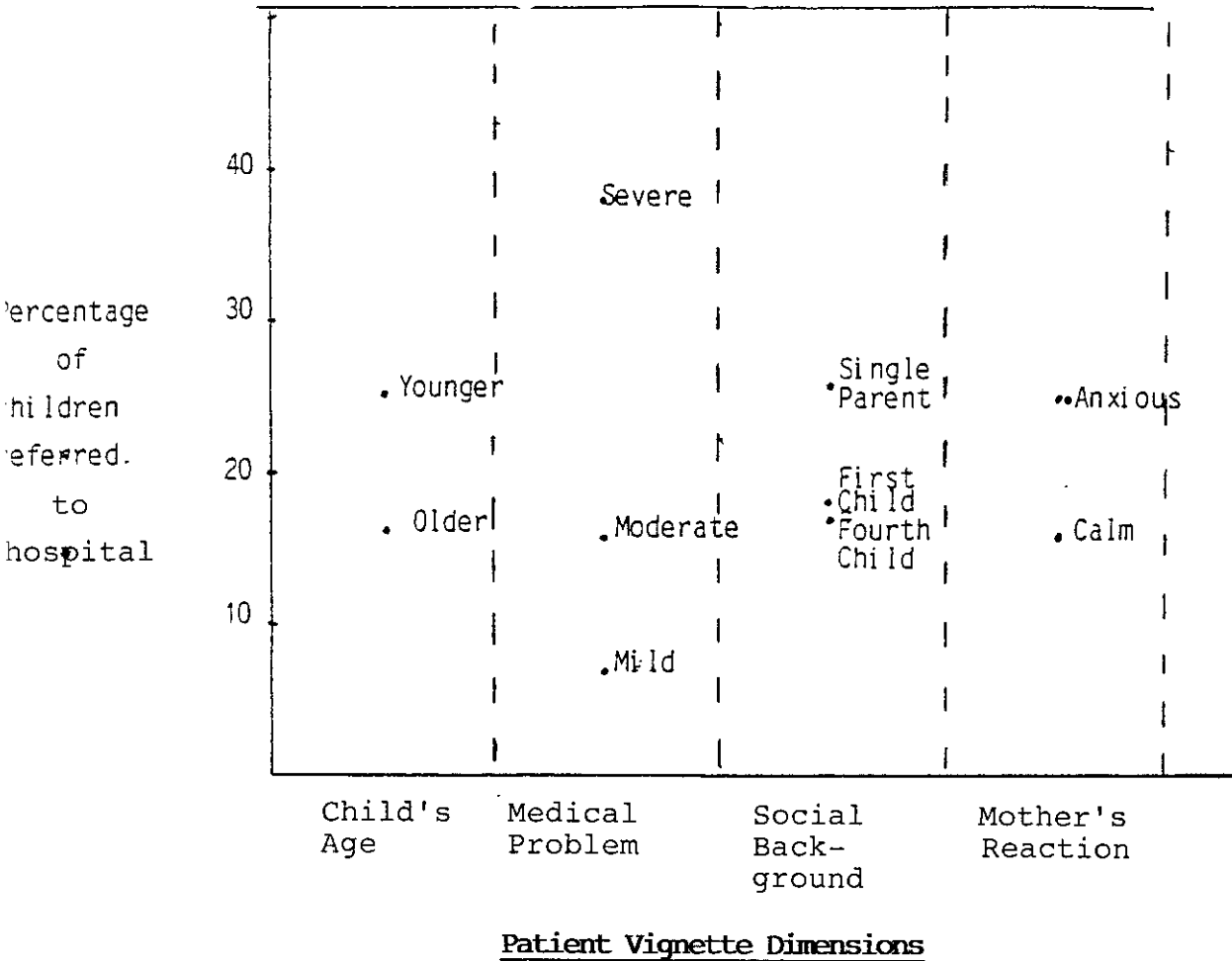
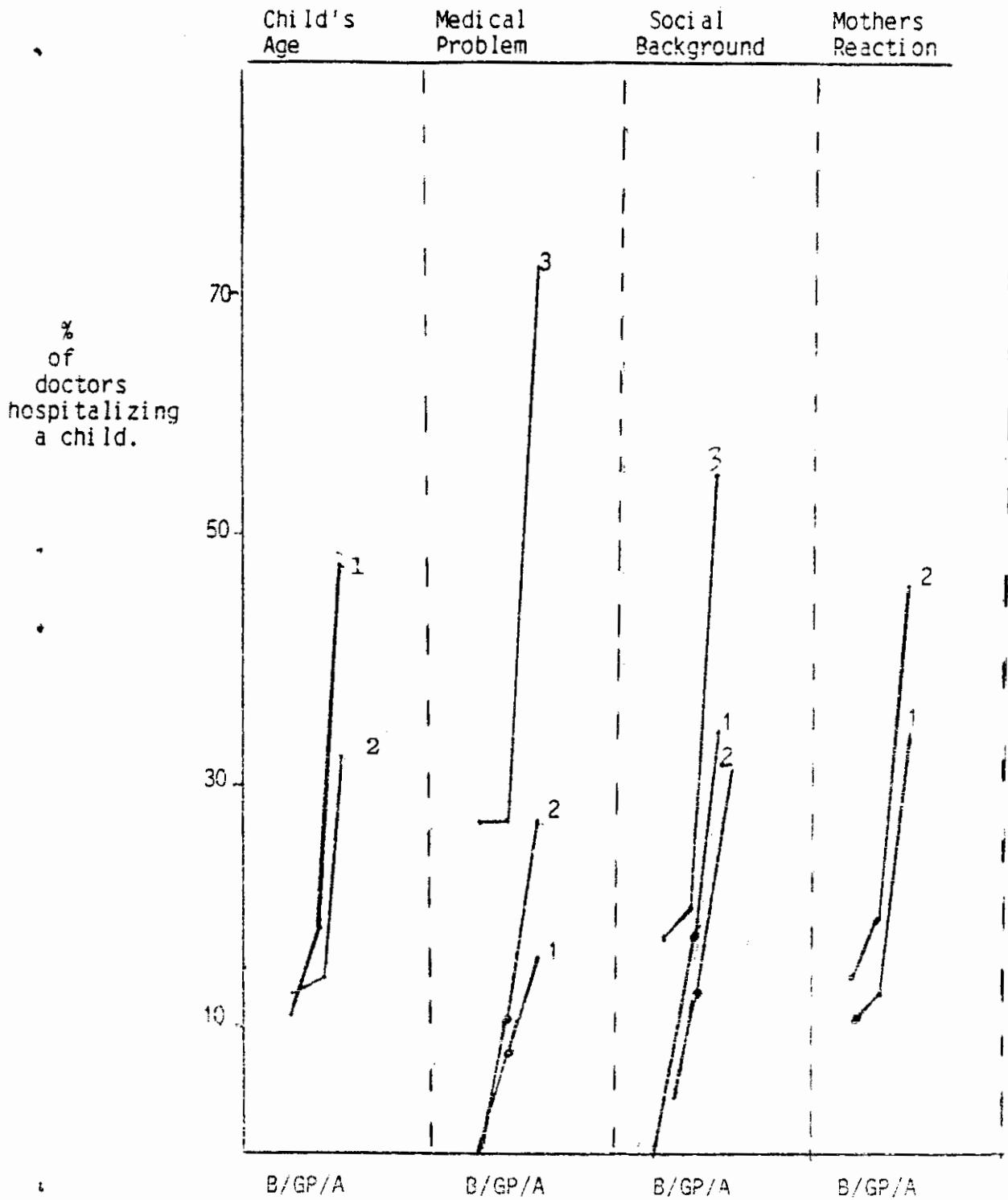


Table 2.2 Percentages of Gastroenteritis Cases Sent to Hospital by Vignette Dimensions

Vignette dimensions	Total Sample	GPs	Hospital A	Hospital B
	N 80	52	16	12
	%	%	%	%
<u>Age :</u>				
Younger (3/12)	24.9	17.5	48.2	11.6
Older (15/12)	16.8	14.2	31.8	13.2
<u>Medical Problem:</u>				
Mild	6.8	8.8	16.2	0.0
Moderate	16.2	11.3	26.7	0.0
Severe	38.1	27.1	72.0	27.1
<u>Social Background:</u>				
2 parents, 4th child	17.2	11.3	33.9	0.0
2 parents, 1st child	18.2	16.2	32.4	4.6
Single parent, 1st child	26.3	19.7	54.8	17.4
<u>Mother's Reaction:</u>				
Calm	15.7	12.8	34.2	11.0
Anxious	25.4	18.8	46.0	14.0
Total percentage of hospitalizations	20.6	15.9	40.2	9.3

Figure 2.2 Relative Hospital Referral Rates by Gastroenteritis Vignette Dimensions for GPs and Hospital Doctors.



KEY: B: Hospital B doctors
 GP: GPs
 A: Hospital A doctors.

Child's Age	Medical problem	Social background	Mothers reaction
1. Younger (3/12)	1. Mild	1. Fourth child	1. Calm
2. Older (15/12)	2. Moderate	2. First child	2. Anxious
	3. Severe	3. Single parent.	

GPs and hospital B doctors do not differ significantly in the numbers of vignette cases hospitalized for gastroenteritis, while they both differ significantly from hospital A doctors ($p.s < .001$). In all, hospital B doctors referred 8.3% of vignettes seen, GPs referred 15.9% of vignettes seen, and hospital A doctors referred 40.2% of such vignettes. The largest differences in referral rates between hospital A doctors and others were for the medical and social background dimensions, with for instance hospital A doctors referring almost three times as many of the severe medical cases to hospital (72 vs. 27%).

General Treatment of Gastroenteritis

Overall treatment of gastroenteritis vignette cases was by fluids only, 84% of vignette replies providing this option. A further 7% of replies involved the use of antipyretic measures, usually Calpol and less often 'sponging down'. In 6% of vignettes other medicines were used; these were used by a total of twelve doctors, all GPs. The medicines used are shown in Table 2.3. Antispasmodics were the most widely used medicines followed by antiemetics and antidiarrhoeal agents.

Table 2.3 Medications prescribed by Doctors in Study Vignettes

Medication	Younger Children (3 months) %	Older Children (15 months) %	Number of doctors using these
Motilium	17	29	6
Emodium	2	28	4
Stemitil	3	2	2
Lomotil	-	3	1
Pecolin	3	1	1
Diarrest	3	3	1

N = 80

When asked about their management of gastroenteritis generally twenty-one GPs and one hospital doctor used medication in the management of infant gastroenteritis. The specific medications mentioned are illustrated in Table 2.4. Two older doctors used a traditional chloroform/morphine combination which they made themselves. Other medicines used were proprietary brandnames.

Table 2.4 Medication used by doctors in the general treatment of gastroenteritis

Medication	No of doctors	Use		
		occasionally	often	routinely
Kaopectin/ate	6	6	-	-
Motilium	5	3	-	2
Emodium	3	2	-	1
Maxalon	3	3	-	-
Stemtil	2	1	-	1
Lomtil	2	1	1	-
Chloroform & Morphine	2	2	-	-
Diarrest	1	1	-	-

N = 22 doctors.

In terms of recontact with patients two doctors had no routine follow-up, one called to patients' homes mainly, fourteen used the telephone, thirty asked patients to return as standard practice and thirty five used a mixture of these options. Thirty three per cent (33%) of GPs do not use the telephone as a follow-up facility for the management of gastroenteritis, another 34% using it only a little. Twenty two per cent (22%) of doctors also do not routinely recall gastroenteritis patients, with 19% recalling them on almost all occasions. Sixty per cent (60%) of GPs reported not using housecalls for

gastroenteritis follow-up, with two doctors using this method to recheck quite often. Twenty-four per cent (24%) of doctors did not use antipyretics in conjunction with gastroenteritis, the remainder using them on varying occasions. On occasion 12% of doctors used antibiotics, 16% used antidiarrhoeal agents and 20% used antispasmodics. Another 3% used antidiarrhoeals and 2% antispasmodics 'often'.

When asked to estimate the percentage of children hospitalized from their own work GPs estimated about 7% and hospital doctors 16% ($p = .01$). GPs and hospital doctors do not differ in the number of children for which they request definite recalls (5 and 6% respectively). GPs, however, do see significantly fewer cases of gastroenteritis in a two week period than hospital doctors (35 versus 56, $p = .055$). The two groups of doctors are similar in their beliefs on the severity of gastroenteritis (Table 2.5) and on the numbers of bad experiences they have encountered with gastroenteritis (Table 2.6).

Table 2.5 Ratings of the general severity of gastroenteritis by doctors

Severity Rating	GPs %	Hospital doctors %
Mild	56	61
Moderate	17	21
Severe	14	4
Very severe	13	14
N= 80		

Table 2.6 Worst experience of gastroenteritis for hospital doctors and GPs

TYPE OF EXPERIENCE	G.P. (%)	HOSPITAL DOCTOR (%)
No bad experience	17	14
Dehydration only	46	43
Complications	21	21
Life threatening	6	11
Death	10	11
N= 80		

Relevant Non-medical Factors in Gastroenteritis Management

In developing the study vignettes a number of non-medical factors had emerged as potentially relevant in a decision on gastroenteritis and from these the four vignette dimensions were taken. A listing of other potentially relevant factors was compiled in order to assess which ones are seen to be appropriate by doctors (see Appendix 2, p.2).

Twenty-three (23) factors were queried and an open-ended question asked as to the existence of other factors. Three (3) other factors were most commonly mentioned; intelligence/common sense, amenities and coping ability. On the original listing only one doctor in eighty felt that the sex of the child would be a relevant factor of gastroenteritis decisions, this doctor being more wary of girls when sick. Table 2.7 provides the factors as they were viewed by all doctors. The only factor for which there was a significant difference of opinion between hospital doctors and GPs was type of feeding. GPs felt that whether a child was breast fed or bottle fed was significantly more important as a factor in decision making ($p < .05$) than did hospital doctors. As seen from the

table the five most influential factors in decision making in descending order of importance were maternal depression, age of child, parenting skills, maternal anxiety and hygiene levels. The five least influential factors as assessed by doctors from the least up were family finances, neighbourhood, working mother, first born child and family education. Doctors were asked how they viewed gastroenteritis as a medical problem. The majority (55%) felt it was a mild illness, 20% said moderate, 11% serious and 14% very serious.

Few relationships between these family factors and numbers of children hospitalized reached significance. Among GPs those who felt age was an important factor were more likely to hospitalize ($r = .33$, $p = .008$) as were those who felt the influence of hospitalization was not important ($r = -.267$, $p = .028$). There were no significant relationships between these factors and hospitalization rates of hospital doctors.

Table 2.7 Percentage of doctors considering family and social factors relevant in gastroenteritis decision making (N=80)

FACTOR	%
Child's age	92
Single parent	59
Working mother	47
Number of children	60
First born child	51
Young mother	58
Education	55
Distance from G.P.	62
Unknown to G.P.	54
Poor hygiene	84
Type of feeding	58
Finances	23
Hospital:Parents' view	66
Neighbourhood	32
Parenting skills	90
Residence	64
Depression	93
Anxiety	85
Crowding	79
Hospital:Child effects	57
Marital problems	76
Amenities	18
Intelligence	21
If coping	35

GPs and hospital doctors also do not differ in their views of health education methods in the management of gastroenteritis. Table 2.8 outlines their views on leaflets, media and video education on gastroenteritis.

Table 2.8 Doctors' opinions on the usefulness of health education methods for gastroenteritis

Usefulness of methods	METHOD		
	Leaflets	Media	Video
Not useful	8	14	8
Wary of them	-	7	-
Unsure about them	6	7	9
Impractical/expensive	1	7	7
Queried effectiveness	3	7	5
Useful	62	38	47

N = 80

Leaflets were seen to be the most helpful, 78% of doctors approving of their use in their practice setting with the media (taken by doctors to mean television mostly) being seen to be least useful. Furthermore seven doctors expressed concern about mass media messages for gastroenteritis. One GP and one Casualty Department in the present study had already produced an information leaflet on gastroenteritis for parents as did a West Dublin GP not included in the sample but recommended to the interviewer in the course of the study. These leaflets are presented in Appendix 4 and discussed further in section 4.

Views of the influence of hospitalization on small children were also statistically similar for hospital doctors and GPs. These overall views (Table 2.9) were of 'none' (13%), 'little' (2%) or 'generally no effects' (14%). Those who felt there was a definite negative effect (50%) further qualified this by saying 'if less than a year old' (1%) or 'if older' (14%). Five per cent (5%) felt the negative effects to be traumatic, 8% to be long term and 22% said there would be 'some negative effects'.

Table 2.9 Doctors' opinions on the effects of hospitalization on young children

Effect	N
No effect	10
generally no effect	11
little effect	2
can be fretful	14
some negative effect	18
negative under 1 year	1
negative if older	11
negative if long term	6
traumatic	4
very varied	3
N= 80	

In relation to visiting arrangements in hospitals, 45% of doctors made no general recommendations to parents. A further 10% making no comments specified that they did not think it necessary as they felt parents now realise the importance of visiting. Two doctors said they recommend not staying in hospital with children. One doctor would encourage visiting if asked and the remaining 29% mention

and encourage visiting and/or staying. One doctor offers time off work to parents to facilitate hospital stay and another provides parents with a booklet on childhood hospitalization.

Background of doctors

Only two of eighty doctors had basic medical education outside Ireland and seven had had paediatric training outside the country. Seventy per cent (70%) held or were about to sit for the Diploma in Child Health (DCH) and 28% had experience of working with childhood gastroenteritis in the hospital under study. When queried about whether their present management of gastroenteritis had changed in any way from their training most doctors said no (52%).

Table 2.10 outlines the type of changes, if any, in their management since training. GP/hospital doctor comparisons are not an issue since most hospital doctors were just finished training and had not changed this management from what they were taught. The biggest change was away from medication to rehydration by older doctors who had been educated to use such medications for gastroenteritis. The previous experience of doctors with gastroenteritis may influence how they now view and manage the problem. There were no differences in the numbers of bad experiences of hospital doctors and GPs. Sixteen per cent (16%) of doctors had had no bad encounter with gastroenteritis, 45% had seen dehydration only. A further 26% had handled complications of gastroenteritis, 5% of which were life-threatening. In the extreme 13% of doctors had witnessed deaths from gastroenteritis.

Table 2.10 Doctors' changes in the management of gastroenteritis since their training

CHANGES	N
No change	42
Rehydrate only now	21
Focus on social issues now	5
More confident at reassurance	4
Stricter now	3
Regrade faster	2
Use medication	2
Take off milk for 1 week	1
N= 80	

Doctors' Workload

The workload of hospital doctors was not assessed as it was assumed that they work equivalent amounts. The workload of GPs can be considered in a number of ways. Exactly half of the GPs worked from a single location with only two working in more than two locations. Fifty per cent (50%) of GPs also worked in a single practice and a further 33% in two-team partnerships. Thirty one per cent (31%) of GPs described their patients as mainly General Medical Service (GMS) patients, 40% mainly private patients and the remainder had a 50:50 breakdown of the two patient types. GPs had a mean of 181 patient consultations weekly divided between surgery visits (163) and home visits (18). The range of consultation numbers was 25-430. Two GPs saw themselves as part-time doctors having 25 and 35

consultations weekly. Apart from these no doctor saw less than 90 patients weekly. The interaction between type of patient practice and working schedule was highly significant. Doctors in GMS practices saw significantly more patients in surgery ($p < .001$) and did significantly more home visits ($p < .01$) than those in private practice (see Table 2.11).

Table 2.11 GP workload by type of practice

TYPE OF PRACTICE	WEEKLY WORKLOAD		
	N	SURGERY VISITS	HOUSE CALLS
G.M.S.	16	218	24
50:50	15	171	19
Private	21	113	13

N= 51

Hospital doctors and GPs do not differ in a range of gastroenteritis and health related attitudes yet differ significantly in the numbers of children they hospitalize both in hypothetical vignettes and in estimates of their clinical work. Since the use of vignettes controls for the severity of illness in this study, such differences cannot be explained by suggesting that hospital doctors see more severe cases of gastroenteritis. To further understand these differences between hospital doctors and GPs the factors which explain their decisions to hospitalize or not are now examined by multiple regression. Firstly the factors which are intrinsic to the doctor, or 'doctor' factors, are considered. Then the combination of doctor factors and patient factors as supplied in the vignettes will be examined to discover how much the different factors weigh in the management decision on gastroenteritis.

'Doctor' Factors in Gastroenteritis Management

GPs

Stepwise multiple regression on the numbers of children hospitalized from study vignettes was performed for GPs. Six steps were produced in the analysis explaining a total of 44% of the variance in decision making (see Table 2.12).

Table 2.12 Doctor factors responsible for differences in referral rates to hospital of gastroenteritis vignettes as determined by stepwise multiple regression

G.P. s		HOSPITAL DOCTORS	
Factors	R ² (%)	Factors	R ² (%)
Bad experiences	17	Severity rating	14
Severity rating	24	Hospital effects	20
Sex of doctor	31	D.C.H.	34
If team practice	36	Sex of doctor	40
Management changes	40	Time in medicine	47
Age of doctor	44	Visiting recommendations	51
N=	52	Management changes	56
		N=	28

These steps in descending order of inclusion were bad experiences with gastroenteritis, general estimates of the severity of gastroenteritis, sex of doctor, if in a team or single practice, if gastroenteritis management had changed since training and age of doctor.

The GPs who sent more vignette cases to hospital were those with bad experiences of gastroenteritis ($r = .413$, $p < .01$) higher estimates of the severity of gastroenteritis ($r = .343$, $p < .05$) and those with busy practices ($r = .288$, $p < .05$). There was no relationship between patient type and number of hospitalizations or between hospitalizations and health education and attitudes to the effects of hospitalisation.

Hospital doctors

For hospital doctors a series of seven steps was produced by multiple regression explaining 56% of the variance in gastroenteritis decisions (Table 2.12). Here the factors were the general severity rating of gastroenteritis, the effects of hospitalization, if the DCH had been taken, sex of doctor, length of time in medicine, if visiting recommendations were given and if there were any changes in gastroenteritis management since training. The only doctor factor which correlated significantly with numbers of vignette hospitalizations for hospital doctors was rating of the general severity of gastroenteritis ($r = .371$, $p < .05$); those seeing gastroenteritis as more severe being more likely to hospitalize children with it.

In the real-life situation both aspects of doctors and of patients and their families would be expected to influence the management decisions on gastroenteritis. The influence of these combined aspects on decision making is now examined using stepwise multiple regression.

The Influence of Non-medical Factors on Gastroenteritis Management

In these analyses the relative influences of all non-medical factors queried in the study on gastroenteritis management were used as predictors of the numbers of children hospitalized for this problem. These factors are the 'doctor' factors as used in the previous analyses and

the listing of patient factors relevant to gastroenteritis as outlined in Table 2.7. As before analyses are presented for GPs and hospital doctors separately.

GPs

From a total of forty two factors only three were sufficiently related to levels of hospitalization to be included in the multiple regression equation results. As seen in Table 2.13 the first and third factor are aspects of the doctors' repertoire and the middle factor relates to the age of the child being assessed. In all 34% of the variance in childhood hospitalization is explained by these variables. The major proportion of the variance explained (88%) is accounted for by aspects of the doctors' background with 12% coming from aspects of the patient. GPs having more bad experiences, less likely to be working in a team practice and seeing the age of the child as an important factor were more likely to hospitalize children for gastroenteritis.

Table 2.13 Multiple regression analysis of the influence of nonmedical factors on hospitalization rates for gastroenteritis by G.P.'s

FACTOR	R ² (%)
Bad experience of doctor	19
Age of child	27
If in team practice	34

N= 52

Results for hospital doctors as outlined overleaf show a different picture.

Hospital Doctors

In this analysis twelve of forty-two possible factors accounted for 88% of the variance in hospitalization rates. These were five factors relating to doctors and seven factors relating to children and their families (see Table 2.14).

Table 2.14 Multiple regression analysis of the influence of non-medical factors on hospitalization rates for gastroenteritis by hospital doctors

FACTOR	R ² (%)
Severity rating of gastroenteritis (D)	14
Coping ability of parents	21
Parental attitudes to hospitalization (P)	29
Distance from G.P./Hospital	40
Age of child (P)	49
Type of feeding (P)	59
Conservatism (D)	64
Visiting recommendations provided (D)	66
No. of children (P)	72
Single parent (P)	79
Sex (D)	83
IQ of family (P)	88

N = 28

D: Doctor factors

P: Parent factors

In the case of hospital doctors, family factors accounted for 64% of the variability with doctor factors accounting for the remaining 34%. Doctors' views on the severity of gastroenteritis and how these relate to background factors in the doctor are considered next.

Views on the Severity of Gastroenteritis

Since doctors' opinions on the general severity of gastroenteritis and the past experience of doctors with gastroenteritis emerged as important factors in the differential management of gastroenteritis by doctors they are considered further. General severity ratings and past experiences of gastroenteritis are not related in any way to each other. For GPs both higher ratings of the general severity of gastroenteritis and poor experiences with gastroenteritis were significantly correlated with numbers of children hospitalized ($r = .343$, $p = .021$ and $r = .413$, $p = <.005$ respectively). Besides this, general severity ratings are significantly related only to home visits; those with higher estimates of severity making more home visits ($r = .333$, $p = .025$). There were also trends in the direction of more severe ratings being associated with higher numbers of consultations weekly ($r = .272$, $p = .071$) and more conservative doctors i.e. doctors more likely to use specialist services ($r = .264$, $p = .08$). Thus general severity ratings are not related in any way to health attitudes or demographic aspects of GPs. Those GPs with worse experiences of gastroenteritis were also less in favour of video health education ($r = -.400$, $p = <.006$), more likely to be in team practice ($r = .25$, $p = .097$) and more likely to be in GMS practices ($r = -.274$, $p = .068$), to have more weekly surgery visits ($r = .303$, $p = .043$) and home visits ($r = .455$, $p = .002$).

For hospital doctors there was no relationship between general severity of gastroenteritis and bad experiences or between bad experiences and numbers hospitalized. Those viewing gastroenteritis as a more severe disorder generally were however likely to send more children to hospital from study vignettes ($r = .371$, $p = .052$). No factors in the doctors' background, training or health attitudes were associated with either general severity ratings or levels of bad experiences with gastroenteritis.

The management of gastroenteritis by GPs and by hospital doctors has been outlined. The hospital doctor sample consists of doctors working in the Casualty Departments of two hospitals. As these were major contributors to the hospital-referred population of children with gastroenteritis, it may be useful to consider the management outcomes of the two hospitals separately. Analysis will now be used to see if differences in the Casualty Department management of gastroenteritis exists between the two hospitals.

Gastroenteritis Management in Two Casualty Departments

For this comparison sample sizes are small, sixteen doctors in hospital A and twelve in hospital B. It is to be expected nonetheless that useful indicators of their similarities in practice, or otherwise, will be elicited. Doctors in hospital A would refer significantly more of the vignette cases to hospital than doctors in hospital B (7.6 vs. 2.6 referrals, $p < .001$). In the context of their real-life work hospital A doctors also estimated that they send a higher proportion of their Casualty Department cases to hospital than do hospital B doctors (21% vs. 9%, $p < .02$). Both groups of doctors were equally consistent in their management of gastroenteritis by the twice-rated vignettes. They also requested Casualty Department recall visits with equal frequency. Hospital B doctors however saw many more children with gastroenteritis in a two month period than those in hospital A (91 vs. 36, $p < .02$). The two groups of doctors did not differ in opinions of the relevance of a listing of 26 non-medical aspects of the gastroenteritis situation such as age of child and maternal anxiety. They were also identical in their views on the effects of hospitalization on small children, in the effectiveness of leaflet, media and video approaches to health education and in visiting recommendations to parents of hospitalized children.

They were equivalent in their length of time practising medicine, in estimates of their conservatism or otherwise and in the numbers of bad experiences encountered with gastroenteritis. In all the two sets of doctors were equivalent in experience and in general attitudes. Yet there was a trend for hospital A doctors to rate gastroenteritis as a more severe illness than their counterparts did ($p = .107$). The reasons for this will be considered in the discussion.

GPs with Hospital Referrals During the Study Period

Doctors who had or had not hospitalized a child for gastroenteritis in the three month period of the study did not differ significantly in the number of children sent to hospital from study vignettes ($p = .198$) or from estimates of their own practice hospitalization rates for gastroenteritis ($p = .388$). In terms of gastroenteritis management doctors referring to hospital used telephone recontact with patients less often (18 vs. 34%, $p < .05$), recalled patients to surgery less often (2 vs. 7%, $p < .01$) and recommended somewhat less medication ($p = .08$).

Doctors using the hospital in the three month period were also those who saw more children with gastroenteritis in the recent past (65 vs. 27 children, $p < .05$). There were also weak trends in the direction of doctors who used the hospital being busier in surgery ($p = .158$) and in home visits ($p = .182$). Also doctors using the hospital for gastroenteritis had significantly worse experiences of gastroenteritis than those not using the service ($p = .009$).

Doctors with or without patients in hospital during the time period of the study did not differ in their attitudes to health education, attitudes on the relevance of non-medical factors in gastroenteritis, in their severity rating of gastroenteritis, in their age and their length of medical career, in their experience of working in the infectious diseases hospital under study and in their child

health (i.e. DCH) qualifications. There was however a significant difference ($p = .003$) in the type of patient practice between the two sets of doctors. (Table 2.15)

Table 2.15 Type of GP practice by use of hospital services for gastroenteritis (January 1987 - March 1987)

Patient in Hospital
during study period

Type of Practice	No N	Yes N
G.M.S.	8	8
50:50	13	2
Private	20	1

N = 52

From this table it can be seen that 50% of doctors whose practice was mainly GMS had a child in hospital for gastroenteritis in the study period. Thirteen per cent (13%) of the mixed practice doctors and 5% of the mainly private practice doctors had children in hospital in the same period.

Proposals for Tackling the Problem of Childhood Gastroenteritis

Doctors were asked for their suggestions on the most appropriate ways of tackling the current incidence of, and hospitalization rates for, gastroenteritis.

Recommendations are presented in Table 2.16.

Table 2.16 Summary of suggestions from doctors for the improvement of gastroenteritis management

Suggestion	Number Suggesting
- no decrease in incidence possible	4
- no decrease in hospitalization possible	6
- unsure/answers outside of medicine	3
<u>Suggestions for hospital</u>	
- day care/shorter stays	2
- child assessment/second opinion	2
- more information to GPs	1
<u>Suggestions for GPs</u>	
- standard management procedures	8
- nurse follow-up for gastroenteritis	12
<u>Suggestions for parents</u>	
- Health Education - media	9
- leaflets specifically	5
- hygiene: mothers perinatally	6
: at school	4
: generally	13
- Parent Education - on child care	13
- on breast feeding	6
- on oral rehydration	16
- on using GP wisely	6
- on benefits of home care	2
<u>General suggestions</u>	
- increase social services/tackle social problems	18

N = 80

Presenting training in oral rehydration and hygiene were the most frequent suggestions.

The results as presented here are discussed in the next Section.

2.5 DISCUSSION

This empirical investigation confirms the findings of numerous surveys of the wide variability in doctors' referral rates. In this case analysis was done on a single disease thus ruling out difficulties of the confounding of different problem combinations and referral rates. The results illustrate that doctors differ in their referral patterns for gastroenteritis both in an experimental situation and in their estimates of their own working practices. Referral rates from vignettes varied from none to fourteen of eighteen (78%) and in the doctors' own work estimates from zero to 95%. Before continuing, the representativeness of the doctors surveyed is discussed.

In the present sample 22% of doctors are women in comparison with 25% of working doctors nationally. Thirty five per cent (35%) are forty years old compared with 49% nationally (Irish Medical Times, 1987a). The Casualty Department doctors were recruited from the two major children's hospitals in the city and the samples included all doctors dealing with the Casualty Department who were working and available on interview days at the respective hospitals. GPs were taken randomly from GP listings for the West Dublin area. Comparing them with Irish GPs generally 40% of the sample were in private practice exclusively compared with about 25% nationally. Average weekly consultations were 181 for the study sample and 160 for GPs nationally (Boland, 1987). Sample doctors are thus somewhat younger, busier and more private practice orientated than Irish GPs as a whole. This may reflect the urban nature of the sample. However in all the sample is not markedly different in constitution from the profile of Irish doctors generally. Study findings can thus be treated as being relatively generalizable to the Irish medical situation.

Vignette analysis illustrates that psychological, social and demographic information influences the management of a particular medical problem. For this study preliminary consensus on the three most important non-medical factors in gastroenteritis assessment resulted in the use of age, maternal reactions (anxiety) and family social background as variables in these vignettes. The overall pattern for doctors in Figure 2.1 was of these three dimensions to have similar relationships with the levels of hospital referral, thus younger children, those of single parents and those of anxious mothers were equally likely to be hospitalized. About one in four children with either of these characteristics was hospitalized. Figures do not rise substantially when two factors are combined, for instance 30% of cases with young children and single parents were hospitalized, 28% of cases with young children and anxious mothers and 31% of cases with single and anxious mothers. When all of these three non-medical factors are combined, i.e. a medical case with a young child of a single and anxious mother, 40% of cases were hospitalized. In the most serious scenario with a young child having a severe medical problem and an anxious single mother, there was a 64% likelihood of hospitalization. On the other hand the least serious possible scenario in these combinations was of an older child with a mild medical problem whose mother was calm and experienced with children: in this case the likelihood of hospitalization was 5%.

This empirical investigation thus illustrates that the non-medical factors examined do have (and have equivalent) bearings on management decisions for gastroenteritis. The effects of these individual factors are stronger than that of moderate symptomatology in the management decision for gastroenteritis.

Given that age as a factor is often seen to be inseparable from the medical problem of gastroenteritis this study illustrates that the effects of anxiety on doctors' management decisions are equivalent to the effects of

single parenthood. This may not have previously been recognised and is a finding requiring further consideration in Section 4.

Use of a list of non-medical factors validated both the vignette constructions and their outcomes. Age of child and maternal anxiety features were seen as two of the five most important non-medical factors in gastroenteritis management by doctors. Also included were depression, parenting and hygiene. Least important were finances, neighbourhood, working mothers, first born children and family education. Coping ability was mentioned independently by 35% of doctors thus emphasizing its importance in the context of decision-making. This point is borne out in the practice of doctors in a recent study of acute illness where 33% of infants hospitalized were so because doctors estimated that parents could not cope (Stanton et al., 1980). In many ways the five most influential factors mentioned here such as depression and anxiety are reflections of or contribute to coping ability. Comparing these two sets of factors suggests that doctors felt functional rather than topographical or structural aspects of the family situation to be important in gastroenteritis management. Many doctors spontaneously commented on structural aspects such as marital status, neighbourhood and family education by emphasizing the positive parenting skills and coping ability of many in difficult situations and the need to judge each case on its merits. As one GP stated "if I were to hospitalize children because of poor social background and single parent family, most of my patients would be in hospital".

For gastroenteritis management some 79% of vignette cases and 90% of cases seen in the course of the doctors' work are managed at home. ORT and patient recall is the most common management option for gastroenteritis patients with housecall being the least common option both initially and at follow-up. One management option, that of providing a note for the hospital on a parent's second visit to the GP (this to be used if the situation does not improve rather

than returning a third time to the GP), was used by one doctor only. The problem with this system is evidenced by the fact that this GP had three patients under two in hospital in the three month study period.

The use of medications such as antibiotics for gastroenteritis in the under two's by a sizeable proportion of doctors (16%), albeit occasionally, is worrying in the light of evidence presented in the introduction, of clinical acceptance of the ineffectiveness and possibly even detrimental effects of such medication for childhood gastroenteritis.

The findings here, if worrying, are not unusual in the Irish context. Scully, Lavelle and O'Brien (1986) also report the prior prescription of antibiotics to children arriving in Casualty Departments with gastroenteritis and a general level of antibiotic prescribing to young children for 80% of visits to GPs.

Also worrying is the fact that 29% of doctors see the hospitalization of young children generally as having no appreciable negative effects on them with a further 21% feeling that the hospital experience may have some negative effects. In all only 50% of doctors felt that hospitalization clearly had negative effects on young children with 57% considering the effects of hospitalization on the child in decision making on gastroenteritis. Sixty-six per cent (66%) of doctors took parents' views of hospitalization into account in their decision making on gastroenteritis. Such beliefs and practices do not concur with the view of Mrazek (1984):

"Over the past generations the belief that hospitalization early in life has a negative psychological effect on children has become an established clinical axiom." p.211

It is notable in this study that beliefs regarding the influence of hospitalization on young children are not understandable by reference to demographic variables, medical experience or health related attitudinal information of doctors. It may be that doctors' views on the impact of hospitalization on young children derive from their beliefs about children and/or fundamental philosophy of life since such views do not show the influence of educational training such as the DCH or work experience such as exposure to community (GP) versus hospital work.

It is also disappointing that, in the face of clinical and research attention spanning thirty years and consumer action in England and Ireland (through groups like the National Association for the Welfare of Children in Hospital) of some fifteen years at least, low levels of appreciation of the negative impact of hospitalization still exist in medical circles. Research evidence as outlined in Section 1 does of course show that one short hospitalization does not have long term negative impacts on young children but that subsequent hospitalizations are damaging in the long term. It is in this respect that any hospitalization needs to be seen as a vulnerability inducing factor even if not damaging in and of itself and that the decision to hospitalize be taken with this caution in mind.

One obvious factor bearing on the reactions of doctors to gastroenteritis is their previous experience with the disease. The similarity of GP and hospital doctors' experiences, with for instance 10 and 11% respectively witnessing deaths, suggests that experiences of serious instances of gastroenteritis generally occur during one's medical training rather than in general practice. However more negative experiences of gastroenteritis among GPs are associated with doctors who work mainly with GMS patients and are busier both in numbers of surgery consultations and home visits suggesting the influence of post training experience of gastroenteritis. More negative experiences

are significantly related to the numbers of children hospitalized by GPs and they explain the largest variance in GP rates of hospitalization whether GP factors or GP and patient factors combined are considered. More negative experiences were also the one factor clearly differentiating the eleven GPs interviewed who had children admitted to hospital in the three month study period. They bear no relationship to hospitalization rates of hospital doctors. Negative experiences of gastroenteritis are not related to any hospital doctor factors.

The experience of gastroenteritis by working in the infectious diseases hospital under study during training is found to significantly increase hospitalization rates for gastroenteritis among doctors, the majority of these being GPs. This finding highlights the powerful influence of past negative experiences on doctors. One might expect that working in the hospital in question would alert doctors to the often unnecessary hospitalization of children with gastroenteritis. Also the work experience itself would provide these doctors with extra experience and confidence at judging clinical aspects of gastroenteritis such as levels of dehydration thus allowing them to manage children from their own surgeries more often. Whatever influence these factors have, they are clearly minor since doctors with experience in the hospital send almost twice as many of the vignette cases to hospital (5.8 vs. 3.1). Thus exposure to the problem in training appears to sensitize doctors to the potentially negative outcomes of gastroenteritis although deaths from gastroenteritis now are very rare in Ireland (twenty-one infant deaths in over 348,000 births in the first half of the 1980s (.006%)).

The sensitizing effect on doctors of hospital experiences has been commented on elsewhere (Evans and McBride, 1968). This is a difficult problem to address. Perhaps lack of influence of bad experiences on the referral rates of hospital doctors results from:

- (a) their expectation of bad experiences in a Casualty Department setting; and
- (b) their seeing cases as relative to other quite difficult cases and thus having norms of 'difficult case' and being less alarmed than a GP with a norm of mild gastroenteritis cases against which to rate a serious case.

It may also be that working in a GP environment, one is more aware of one's sole responsibility for a child's health.

Ultimately, type II errors (i.e. hospitalizing a relatively mild case) are much less serious for the doctor than type I errors (not hospitalizing a severe case). GPs, despite usually having the benefit of full family background and child health information when making a management decision, are probably aware that they are not as readily available as is a doctor in a twenty-four hour Casualty Department Service. This could add to the caution exercised by GPs who have had more negative gastroenteritis experiences in the past.

Whether working in a team practice influences GP management of gastroenteritis was also considered. Team practice is now generally encouraged among GPs as a way of sharing professional and financial aspects of their work. In this instance the size of the GP practice team made no impact on hospitalization rates with only one doctor in team practice suggesting that he would ask for a second opinion from his colleagues on gastroenteritis management in difficult cases. This concurs with the findings in other studies of very little cross-management e.g. Hull, (1972). The main difference in working environment for doctors is between those working in general practice and in Casualty Departments.

Differences between the referral rates of hospital A doctors/GPs and hospital B doctors are dramatic in this study with hospital B doctors referring almost twice the numbers of gastroenteritis vignettes seen and more than twice the percentage of gastroenteritis patients in their own actual work. As mentioned earlier the combination of assessments shows that increased referral by hospital doctors is not due to the different types of problems seen in Casualty and GP surgeries. Comparing ratios of vignettes and work-related referral only 19% of the higher rates of referral for gastroenteritis by hospital doctors is accounted for by differences in cases seen in Casualty and in GP surgeries.

Multiple regression analysis for hospital doctors and GPs suggests that severity estimates of gastroenteritis are an important source of referral variability in both groups. Many of the other factors in the regressions are similar for the two sets of doctors. Sex is a factor in both analyses although for hospital doctors, women are more likely to hospitalize children ($r = .305$, $p = .115$), while for GPs men have higher referral rates ($r = -.248$, $p = .100$). Team practice is a variable which pertains to GPs only, thus bad experiences appear to be the medical factor common to both groups which explains variability for GPs only. Indeed it is the most important explanatory variable for GPs. Meanwhile an appreciation of the influence of hospitalization on young children (incorporating visiting recommendations) appears to be the medical factor common to both groups which explains variability for hospital doctors only. The impact of bad experiences on doctors' referral rates is independent of their severity ratings of gastroenteritis as seen in the multiple regressions and in Pearson correlations. Thus having more negative experiences of gastroenteritis does not result in seeing it as a more severe problem, which one might have thought to be the logical explanation for increased hospitalization with more negative experiences of gastroenteritis by GPs. Instead it would appear that many GPs having negative

gastroenteritis experiences in the past yet cognizant of the mild nature of gastroenteritis tend more often to refer cases they acknowledge as mild. Bad experiences then may sensitize doctors to refer more often 'just in case' rather than sensitizing them to overestimate the severity of the presenting problem. One GP in the study quite clearly managed gastroenteritis in this way. He explained his referral rate of 14/18 vignettes and 95% of his general gastroenteritis workload by relating a fatality in his practice which resulted from his reversing a decision to hospitalize on request from the child's mother. This experience changed his gastroenteritis management to one of hospitalizing most children regardless of their medical or home situations because of the potential for disaster in the situation and because of his feelings of ultimate responsibility for that. He did not see gastroenteritis as being generally severe but felt that the exceptions dictated management rules.

Multiple regression illustrated that doctor rather than patient variables accounted for most (88%) of the explained variance in hospital referral rates by GPs. The reverse was the case for hospital doctors with only 36% of the explained variance relating to 'doctor' factors. This difference is explained in the relative homogeneity of hospital doctors on doctor-relevant criteria such as years' experience which would inflate the importance of patient-relevant criteria. The fact that 88% of the total variance in patient referral rates for hospital doctors is explained by the doctor and family factors selected in this study (a strikingly high figure by Social Science standards) also suggests the relatively uniform policy of hospital doctors with regard to gastroenteritis management. In contrast only 34% of the total variability in referral rates by GPs is explained by study criteria. This suggests many other influences operating on GPs. The fact that doctor factors are responsible for almost all of the explained variance in GP referral patterns is a very important finding. It illustrates the deciding role of the GP in health service usage. While non-medical patient

factors can be shown to influence GP decisions on gastroenteritis (as seen in the vignette analysis) the GPs own background and experiences mostly determine management decisions. Thus it is that one GP will manage all vignette cases at home and another send fourteen of eighteen to hospital. To use an analogy GPs then are bank managers rather than bank tellers in that they control and decide the flow of patients to other services (as bank managers decide on the allocation of loans, etc.) rather than authorizing patient flow into the health care system (as tellers authorize the provision of cash to customers with sufficient bank accounts). GPs have a pivotal role then in health funding in the area of gastroenteritis. This finding for gastroenteritis supports the general finding by Gray (1984) that the doctor emerges as the single most important factor (over age, sex and social class of patients) in variations in health care decisions. Variations in prescribing rates for minor illness have also been shown to depend more on characteristics of doctors than of patients (Whitehouse and Hodgkin, 1985).

As mentioned earlier the workload of the GP is a little higher in this sample than in Ireland generally. It is also clear from the results that it is the busy doctor rather than the GMS doctor per se, who sends more gastroenteritis cases to hospital. This makes sense in terms of both the relative unimportance of structural family factors by GP ratings and in terms of the demonstrated importance of maternal anxiety in assessing a gastroenteritis case. Busy doctors presumably have less time available to sufficiently calm anxious mothers or to expect to see them a number of times with the same gastroenteritis problem.

A number of factors point to the structural or organisational nature of the decision to hospitalize for gastroenteritis. Despite very different referral rates views on the relevance of a list of non-medical family factors in gastroenteritis is similar for GPs and hospital doctors. So too are general attitudes on health education,

the influence of hospitalization on young children and the general medical severity rating of gastroenteritis. These factors are also similar for the two groups of hospital doctors with the exception of general gastroenteritis severity ratings where results are suggestive of a more severe view of the illness by hospital A doctors. In this hospital moreover almost five times the numbers of referred cases (40.2 vs. 8.3) and over twice the percentages of actual patients seen (21 and 9%) were sent to hospital for gastroenteritis as in hospital B. In fact hospital B management is no different from the lower levels of referral seen in GP figures; 2.6 and 2.54 vignettes referred by hospital B and GPs and 9 and 7% referred in actual practice respectively.

Reasons for the similarity of hospital B and the difference of hospital A to GP gastroenteritis management require further investigation.

The most obvious differences in the experience of conducting this study included the presence of a Casualty team in the much larger Casualty Department of hospital B. An automatic and standard response was given by hospital B doctors when asked of their gastroenteritis management strategies. It was felt that this strong consensus reflected the guidance of a Casualty consultant who was in continual attendance in the Department. The strategy included the standard use of an observation room for borderline cases. Here children and caretakers were held for up to three hours so that doctors could clearly monitor the levels of fluid intake. This was seen to be an important aspect of gastroenteritis management since doctors felt that:

- (a) mothers often overestimate levels of fluid loss through vomiting;
- (b) observation room experience could reassure mothers and educate them to provide small and frequent (rather than large once-off) intakes of fluid to their children and;

(c) those mothers who were not motivated to infant rehydration and home management could be identified.

An observation section was also available in the Casualty Department of hospital A yet only three of sixteen doctors mentioned the use of Casualty Department observation as a deciding strategy between hospital referral and home management. In all hospital A doctors did not have a clear consensus of opinion on gastroenteritis when compared to those in hospital B.

Perhaps a clear consensus, obviously provided by some type of informal or formal instruction on gastroenteritis management in the Casualty Department setting of hospital B provides greater reassurance as to the mildness of gastroenteritis as a medical problem (as is indicated in the lower medical severity estimates of gastroenteritis by hospital B doctors). The experience of seeing many children improve or take sufficient fluid in the observation room may also have provided these doctors with an image of what happens outside of and after Casualty; be it in the infectious disease hospital or in the home. Hospital B also had a short leaflet on gastroenteritis management for parents although it was not clear how often this was actually provided to parents. Other comparisons of the two Casualty Departments are made in Section 4 as is the more general discussion on the findings in this research.

2.6 SUMMARY

The main findings from this research on doctors are summarized below. More general discussion points are taken up in Section 4.

Doctors' study findings:

- (i) The sample studied broadly reflected the structure of the Irish medical population making gastroenteritis referral decisions (i.e. GPs and Casualty Department Doctors).
- (ii) Gastroenteritis in the under twos is a considerable consumer of doctors' time. An average of seven cases weekly is seen by each doctor working in Children's Casualty Departments, and 4.4 cases are seen weekly by GPs. Such cases represent 2.4% of GPs weekly consultations.
- (iii) Large differences in gastroenteritis management and in referral rates exist between doctors in both an experimental situation (paper patients/vignettes) and in their own reported practice policy.
- (iv) Most childhood gastroenteritis is managed at home with Oral Rehydration Therapy (ORT) and patient recall. Ten per cent (10%) of actual and 21% of vignette cases are referred to hospital and 16% of doctors use medication in gastroenteritis management on some occasions.
- (v) Vignette analysis revealed that severe medical symptomatology was the most important factor in gastroenteritis referrals. The next factors (and more important than moderate symptomatology) were young age of child, single mother and anxious mother; all being of equal influence in hospital

referrals. The cumulative effect of these non-medical factors was not additive, the presence of one 'vulnerability' factor having by far the most important effect on referral rates.

- (vi) Functional, as opposed to structural, non-medical factors are the important general family considerations in gastroenteritis management by doctors. The ability of parents to cope emerged as a major theme of these factors.
- (vii) Negative previous experiences of gastroenteritis (including vocational training in a hospital centre for gastroenteritis) is the most important factor in determining a GPs' management decision. The other important factors are estimates of the severity of the disease generally and the workload of the doctor. Busier GPs (although not because they are also GMS GPs) refer more patients to hospital. General belief about the severity of gastroenteritis is also the most important factor in hospital doctor referral decisions.
- (viii) When characteristics of doctors and non-medical characteristics of families are considered together, characteristics of doctors account for almost all GP variability in referral rates and over one third of hospital doctor variability.
- (ix) Casualty Department referral numbers to hospital are significantly higher than GP referral rates and are accounted for by one of two Casualty Departments referring more than twice the level of vignettes and patient population cases to hospital. Reasons for this appear to reflect the organisational differences in Casualty Department management rather than broadly differing attitudes or demographic characteristics of doctors.

- (x) Half of the doctors queried did not have a clear belief in the detrimental effects of hospitalization on young children. Beliefs on this issue were not related to any doctor variables such as experience or education.
- (xi) Doctors' suggestions for the improvement of the gastroenteritis situation centre on education for parents in hygiene and oral rehydration.
- (xii) Doctors were in favour of the health education methods of leaflets, video and the media in that order with the majority (78%) seeing leaflets as useful/usable by them in their own work for the management of gastroenteritis.

The family circumstances of children with gastroenteritis are considered next.

SECTION 3

FAMILY CIRCUMSTANCES ASSOCIATED WITH HOSPITAL OR HOME CARE MANAGEMENT OF
CHILDHOOD GASTROENTERITIS

SECTION 3

Family Circumstances associated with Hospital or Home Care Management of Childhood Gastroenteritis

3.1 INTRODUCTION

Since the origins of health and illness are to be found in the home and the community, an understanding of these domains is a necessary prerequisite to the effective prevention or treatment of health problems. The family is seen as the basic unit of health care of children. Differences in child health have been clearly linked to aspects of families. Egbuonu and Starfield (1982) review a range of studies using family income, education or occupation as an index of social status. They find that, pooled together, studies indicate that children in families of low social status have higher mortality and hospitalization rates, are more often born premature and under-weight and have more severe acute and chronic illness (although not necessarily higher rates of these) than their higher status counterparts. They further examined a range of particular medical problems and again found children of lower status families to have higher levels of lead poisoning, more vision and hearing problems, more iron deficiency anaemia, more cytomegalic inclusion disease (an infectious disease linked to congenital abnormality) and more psychosocial and psychosomatic problems. Only one problem examined, asthma, did not have this clear pattern but even here the reporting of severe asthma was associated with low level social status.

Other studies such as the Black Report (Townsend and Davidson, 1982) link lower social class with poorer child health and this despite over thirty years of free health care aimed at eliminating class inequalities in health. They suggest that class differences in living conditions and life style determine these continuing class differences. What is it about social class which

influences health so much? At first glance the answers seem self-evident. However, social class is a variable which requires rather than provides explanation. The following two research examples serve to illustrate the variety of issues for which social class is a convenient general term.

Spivey (1977) matched a group of American Indian families on home conditions, family size and age distribution and then compared what he termed 'multi-problem' families with a control group. Children in families with three or more psychosocial problems such as alcoholism, violence and parental separation were considered to be in multi-problem families while children in control families had none of these problems. Comparisons revealed that children of multi-problem families had visited well-baby clinics less often and had more diarrhoea and overall illness in their first three years than did children in control families. Most differences in the children's health record occurred in the first year of life when children were presumably most vulnerable. Problem families had an average of 2.8 visits to the well-baby clinic in contrast to 4.6 for control families and children in problem families had 2.1 versus 0.8 medical visits for diarrhoea in their first year. Respiratory infections, accidents and hospitalizations did not differ between the groups. Another study illustrates that the common association between low social class and low birthweight disappears when behavioural indicators such as cigarette smoking are controlled for (Miller, Hassanein and Hensleigh, 1978).

Thus, it is obvious that social class is an umbrella term combining a range of family attitudes, behaviours, characteristics and conditions which have differential influences on health. These aspects of families therefore need to be examined in relation to their impact on child and family health matters.

In the current context of understanding the management of gastroenteritis in different families, it was decided to study such aspects of families. While the development of children has been followed in three National Cohorts over time in England and a recent study (Mayally, 1986) examines the health care provided by mothers for their children in England, very little information is currently available on the lives of young children in Ireland and on the families of these young children. This research opportunity was thus used for two purposes; one to provide an understanding of the context within which gastroenteritis was managed in families and the other to broadly document the lives of families with young children in urban Ireland today. For the latter purpose the group selected for study will not be a random one as outlined later. However gastroenteritis as treated by home management via medical advice is a relatively common occurrence. Study of this group of families can thus provide some image of the 'average' young urban family. Since it is to be expected that children hospitalized for gastroenteritis often come from problem families this second group can thus provide information on the types of difficulties most detrimental in young Irish family settings. Overall then a general picture of the range of circumstances in which young urban Irish children are being raised can be obtained.

Perusal of the literature and consideration of the most salient aspects of the life of families with young children provides a number of distinct areas of research interest which can be examined. The most basic of these is family structure. Others include the life history of the child in terms such as health and temperament; parenting knowledge; skills and satisfaction; marital and other relationships; family environment, amenities and neighbourhood; family occupation, income, work and leisure, family health and family stresses generally. Each of these general topics is now discussed and research findings to date considered as a background to examining these issues in the present study. For the requirements of this study specific information on

the management and understanding of illness (specifically gastroenteritis) and on attitudes to hospitalization are of particular importance and are also considered in the different family contexts. Discussion on these particular topics will be presented first.

Management and Understanding of Illness in Children

Maintenance of the health of young children is a continual task of surveillance, judgement and action and one for which women within the family have most responsibility. Care during illness is but one aspect of the health care of young children; others being health maintenance, by diet for example and safety regulation through such features as household planning. In the everyday care of young children decisions must be taken about signs and symptoms of ill health; what constitutes such signs and what is to be done about them? Sociological studies of child health show that mothers work with a concept of normality for their children and hold a baseline of what they consider to be 'normal illness' such as colds and teething (Cunningham-Burley and McClean, unpublished). These authors also found that much of the process of recognising illness was based on behaviour change rather than physical symptoms; the most common changes being in eating and sleeping habits. For children under five years old mothers 'noticed something' in their children on 49% of the days studied. For 35% of these days no action was taken by mothers; they considered the disturbance trivial or waited to see how it might develop. The remaining episodes which were acted upon resulted in home remedies for 34% of complaints, over-the-counter medication for 27% and professional help for 11%. In all GP contact was initiated on only 3.6% of days when mothers noticed something wrong with their children.

Another study of child health found 2.1 episodes of illness in a month in children aged 18-36 months (Mayall, 1986). Here 47% of mothers had turned to friends and relatives to discuss the child's illness and to receive information, diagnoses and advice. Higher class mothers were more likely in this study to seek such advice from those close to them and also to read books for advice. Lower class

mothers were more likely to rely on the doctor for advice. The lower class preponderance in GP usage was explained by them having more persistently sick children and having fewer social supports available.

Gastroenteritis Management Outside Hospital

As outlined earlier gastroenteritis symptoms are a common category of complaint presenting for medical management. No evidence is available on the general methods of treatment of gastroenteritis in general practice. However there is information on the pre-hospital admission management of children with gastroenteritis. In one study 50% of 181 children under a year old in 1979-1980 had been prescribed drugs inappropriately for gastroenteritis; 30% anti-diarrhoeal agents, 23% antiemetics and 22% antibiotics with four children on three drugs each. Eight per cent (8%) of parents were advised to take their children off solids and to give fluids only. None of the children had been prescribed the standard glucose-electrolyte ORT (Morrison and Little, 1981). Another study in 1982 showed 18% of hospital admissions for gastroenteritis were on inappropriate antibiotics and 20% on inappropriate anti-diarrhoeal agents (Ellis et al., 1984). Furthermore 51% of parents were using Dioralyte (a standard oral rehydration solution) incorrectly, i.e. continuing to feed and give Dioralyte, and 47% of patients were not given specific instructions on the use of Dioralyte. Only 11% of children were on appropriate fluid diets. Thirty nine per cent (39%) were on dilute milk and solid feeds and 50% were on unaltered diets.

Detailed analysis of eighty six Casualty Department attenders for gastroenteritis in 1985 provided an outline of the advice given to those who had already contacted a GP (Burditt, unpublished). For two patients, doctors had advised no action and 'appropriate' advice was given for eleven children. Nineteen had been given rehydration and food withdrawal advice but no information on regrading; in nine cases ORT had been provided as a medicine supplement

or supplement to the child's regular diet rather than as a replacement for this. Three doctors had used inappropriate drugs only and one each had recommended any fluids without solids and orange juice.

In all, inappropriate drugs were used for 31% of children; these were mainly antibiotics (13%) and anti-diarrhoeal agents (7%). An earlier study in this same unit showed that 24% of GP attenders had been prescribed antibiotics (Isaacs, Roberts and Mitchell, 1983).

With regard to pre-hospital management of gastroenteritis, 63% in one study (Burditt) and 47% in another (Isaacs et al, 1963) had been to the GP before attending the Casualty Department. Of the GP attenders in Burditt's study, 54% were referred to the Casualty Department. Fifty seven per cent (57%) of GP attenders took no health action themselves and 62% of those going straight to casualty had not taken action themselves either. Of the 46% of children who were taken to the GP and then self-referred to the Casualty Department, almost half the group said they did so because they felt a children's hospital was the best place for the treatment of children. Ellis et al's study showed a self-referral rate to casualty of 30% with 10% of the other patients having only telephone contact with a GP. In Isaac et al.'s analysis only 42% of GP attenders were referred to casualty by their doctor.

Knowledge about gastroenteritis

Community knowledge of gastroenteritis, its causes and its treatment has not been assessed. However, in Burditt's English Casualty Department sample, 57% did not know what gastroenteritis was and a further 30% associated it with diarrhoea/vomiting/stomach bugs. Reasons for seeking medical advice for problems were mainly diarrhoea and/or vomiting (48%), no improvement or deteriorating condition (20%) and behaviour problems such as crying and not eating (17%). Vomiting alone was the single most likely reason

for seeking medical advice, some 26% of parents reporting this. For those attending the Casualty Department only, 19% said it was because of problems with seeing a GP and 31% because they were unhappy with GP advice.

When parents take their children for medical advice one possible outcome of their actions is the hospitalization of these children. The impact of hospitalization on young children has been outlined in the introductory section of this report. However what are the views of parents about such hospitalizations and are they aware of the consequences of hospitalization for their children?

Parents' views on the hospitalization of children

The question of views of hospitalization itself has not been addressed but a number of related issues have. Earthrowl and Stacey (1977) asked parents about the harm caused by lack of regular visiting of children in hospital. Sixty per cent (60%) of parents felt this caused a great deal of harm, 34% said some harm in some cases and 6% said not much or no harm. In another study 47% of mothers were unconditionally willing to stay in hospital with their child and a further 36% would if the child was seriously ill (Robinson, 1970). Reported patterns of visiting also indicated that mothers spent less time visiting children under one and over four years of age - patterns presumably the result of beliefs in the need to visit at various ages. Earthrowl and Stacey's (1977) work also showed that attitudes to the value of visiting children in hospital did not differ by social class thus dispelling a widely held view that lower class mothers do not appreciate the necessity for frequent contact with their children during hospitalization. Instead the authors showed that less frequent visiting by lower class parents resulted from economic and other constraints. In all then the evidence suggests that parents are aware of the needs of children in hospital.

The discussion now turns to the more general aspects of families which have an impact on the health of children. As with other researchers (e.g. Madge, 1983) families in this study are defined as the children studied and their caretaker(s). The first aspect to consider is the basic structure of the family unit.

3.2.b. FAMILY STRUCTURE

The basic elements of family structure are the demographic variables of age, family size and spacing, family composition, education and occupation.

Age

In the present study the sample of children is restricted to those under the age of two. Within this age group it is to be expected however that older children with gastroenteritis would more readily be cared for in the home since they are less likely to dehydrate rapidly (less of their body weight being fluid). Thus doctors and presumably parents also would be more willing to accept home care.

Maternal age is a much considered variable in the study of child development. For early biological aspects of child health, there appears to be a curvilinear relationship with maternal age; mothers at the lower and upper age ranges have children with problems. For instance, perinatal mortality increases at both ends of the maternal reproductive spectrum (Chamberlain, Phillip, Howlett and Masters, 1978). Other features of child health and development appear to be linearly related to maternal age, always in the direction of more problems for children of younger mothers. Young motherhood was associated with poorer motor development at age one (but not poorer physical health) in a cohort of Dutch families (Mednick, Hocevar, Baker and Teasdale, 1983). Elsewhere, children born to mothers under twenty had higher numbers of accidents and speech fluency problems and lower uptake of immunizations by age five than other children (Golding and Butler, 1986). This the authors linked to the poorer circumstances in which many of these young mothers live. Controlling for such demographic and psychosocial factors, another study illustrates that increasing age was still significantly associated with increased satisfaction and

greater commitment to parenting along with more optimal parental behaviour (Ragozin, Basham, Crnic, Greenberg and Robinson, 1982). The results here were even stronger for mothers with premature babies leading the authors to suggest that older mothers could handle such extra traumas, as well as parenting itself, more effectively. Thus, it seems that even accounting for the often negative features associated with early motherhood such as single status and financial problems, younger mothers are at risk for less optimal parenting and presumably child development.

Child care is also contingent on the number of children in the family.

Family Size

Higher numbers of children in the family could result in one of two options; improved child care for younger children as a result of experience or poorer care as a consequence of diminishing time, energy and material resources. While first time mothers are more likely to re-attend maternity clinics for advice with health problems through probable lack of experience (Clarke et al, 1987), children in larger families are also likely to have had poorer physical health in their first year of life (Mednick et al., 1983). Specifically higher levels of gastroenteritis have been shown to be associated with larger family size (Dingle, Badger and Jordan, 1964). Larger families were also shown to use preventive health options such as health clinics, immunization clinics and dentists less often in their first five years (Golding and Butler, 1986). The fact that lower levels of child health care is not associated with family size in higher socio-economic group families suggests that the association is due to scarce resources in lower income families rather than to family size per se.

Child Spacing

One structural aspect of families which may relate to child health in a parallel manner to family size is child spacing. The closer spacing of children is associated with more developmental problems in the first year of a child's life (Zachau-Christiansen and Ross, 1975) and has been linked to poorer intellectual development through childhood (Zajonc and Marcus, 1975).

Family Composition

The next aspect of family structure which may have a significant bearing on child health is the composition of the family. In modern Western society the nuclear family of wife, husband and children has become the norm, a norm which Parsons and Fox (1952) suggest mitigates against the tradition of care of the sick at home. Litman (1971) found that 59% of his modern American families expressed a complete and ready willingness to relinquish responsibility for the care of the sick to hospital feeling that the sick got better treatment in hospital. Within present society the most common deviation from the nuclear family is the single parent family. The number of single parent families is difficult to estimate but in Ireland some 9.6% of births (N = 5,877) in 1986 were outside of marriage, 12,039 women were in receipt of unmarried mothers allowance and 10,610 women were receiving deserted wives allowance or benefit (Department of Social Welfare, 1987). Single parent families have been a source of concern as a group particularly vulnerable to stress. They have been found for instance to live in overcrowded accommodation with multiple change of location (Crellin, Pringle and West, 1971), to place more responsibilities on their children (Weiss, 1979), to have children who have more accidents (Wadsworth, Burnell, Taylor and Butler, 1983), who soil and wet the bed, have temper tantrums and are admitted to hospital more often than others (Golding and Butler, 1986). The latter findings still hold after accounting for the

poor social circumstances of these mothers. Evidence also shows the remarkable efforts made by single parent families in raising their children and shows the overall picture of similarity rather than differences between children of single parents and their counterparts (Golding and Butler, 1986; Kruk and Wolkind, 1983; Weintraub and Wolf, 1983). The salient point from the research appears to be however that single parents do live lives of crisis relative to other parents. The vulnerability of single parents in times of difficulty is evidenced by, for instance, a study showing that financial problems result in increased restrictions and maternal control on children of divorced women (Coletta, 1978). Elsewhere maternal illness as a particular crisis was the main reason for children of single mothers to be taken into State care; 32% of such mothers reported this reason (Medico-Social Research Board, 1978). Children of single parents are also more likely to be hospitalized following accidents (Wadsworth et al, 1983), again reflecting increased vulnerability during crisis.

In terms of family composition, there appears to be an important distinction between single parenthood and lone parenthood, albeit a little studied one. Single parenthood may often occur in the extended context of the parent's own family. McDonnell, Fitzgerald and Kinsella (1987) found little difference between groups of single and married mothers on a range of demographic, psychosocial and child development indices, but found instead that the subgroup of single mothers who lived alone was especially vulnerable to problems. Furstenberg (1976) talks of 'collaborative child care' between teenage mothers and their own mothers as a reason for the good social development of many children of young mothers and Kruk and Wolkind (1983) suggest that:

"it may well be that support from their mothers gives (these) young women the 'breathing space' that will allow them the time to develop to full adulthood and cope with the responsibilities of child-rearing." (p. 136)

It thus appears that an extended family context may provide useful advice and support for parents raising young children.

Social Class

Another important structural variable in families is the social class of parents. Social class as a variable is often a composite of educational and occupational levels. Consequently information on the three topics is considered together. Low social class is associated with such features as earlier parenthood, large families, smoking, bottle-feeding (Golding and Butler, 1986) and increased behaviour problems in children (Barton and Fitzgerald, 1986). In relation to health the lower classes see themselves as being in poor health more often than the upper classes (Randal and Wheeler, 1979). Yet they delay more in seeking medical advice (Antonovsky and Hartman, 1974) often using health services in a crisis capacity only (Rainwater, 1975). This is further obvious in the lower usage of preventative and prophylactic services for children such as immunizations (Crombie, 1984), health clinics and dentists (Golding and Butler, 1986) and in the lesser impact of health education campaigns such as smoking campaigns on the lower classes (DHSS, 1977). Low socio-economic status is associated with the poorer motor development and physical health of children at one year old despite equivalent and high quality medical care for all mothers throughout pregnancy (Mednick et al, 1983). The impact on child development of the poor environment associated with low social class is vividly illustrated by Werner, Bierman and French's (1977) study of the children of the Pacific island of Kuwai. Here children from poor environments had ten times the intellectual, emotional and physical health problems at age ten as had children who had suffered serious perinatal stress. Sameroff and Chandler (1975) also review literature which supports Werner et al's view that the childhood environment is more important than early medical history in determining the health and development of children.

In relation to gastroenteritis, class differences in child health were actually most evident for pneumonia and gastroenteritis in the 1946 National Cohort Study (Douglas and Blomfield, 1958). Illsley (1967), speaking of post-neonatal mortality, attributed it to:

"such causes as respiratory disease and gastroenteritis, which clearly implicate infection, poor feeding and hygiene, overcrowding and generally low standards of maternal care. This pattern of morbidity can therefore be regarded as characteristic of socio-economic influences."

Overall levels of childhood mortality are indeed associated with lower social status (Brennan and Lancashire, 1978). In all, the evidence indicates that lower educational, occupational or class levels are associated with poorer health and health prospects for young children.

As mentioned earlier these findings of the negative effects of lower class on children's health, represent summary information on a wide range of underlying variables. One of the most obvious of these is the physical environment in terms of the amenities and services available to different families.

Family Amenities and Services

Levels of family amenities and services would be expected to greatly influence levels of child health. Mayall (1986) in a study of child health care concluded that class differences in such care result from constraints in the physical environment rather than differing health care ideologies. Thus for instance mothers in high rise accommodation often find it necessary to prevent children from getting out-doors to play because of the impossibility of appropriate supervision. They are also less likely to be able to afford suitable accident prevention equipment and instead to have to make do with homemade alternatives.

Household overcrowding and smoke pollution in childhood has been shown to be associated with respiratory symptoms in later life, an indication of the life long influence of basic family amenities or their absence during childhood (Kiernan et al, 1976; Atkins, Cherry, Douglas, Kiernan and Wadsworth, 1981). As these authors state:

"the aetiology of chronic bronchitis may extend back to lung damage in early childhood which has been silent in the intervening years." (p. 28)

Most childhood deaths result from respiratory conditions and accidents. Both these factors are clearly linked to household and neighbourhood conditions such as dampness, air pollution and traffic levels. These deaths occur in the lower social classes about four times as often as in the upper classes in the first year of life - a pattern which has not improved despite overall decreases in childhood deaths since the seventies (see Mayall, 1986).

The availability of services to the family is also important to child health. Child deaths from acute post-neonatal causes are significantly higher for families who live further away from medical services (Kelly and Munan, 1974). Services can also, however, be unavailable because of cost as much as location. Although there have been attempts to rule out cost as a barrier to health care by the introduction of State sponsored health care in these islands, the hidden costs of health care differ significantly depending on such factors as family amenities. The time, cost and effort required to obtain health care in families where there is no telephone and no care for instance, must be considered as indirect costs on health which may not be affordable to families with scant resources. Other costs such as the loss of wages to avail of health care also have to be borne by families usually least able to afford them. (See Mitchell, 1984 for a discussion of the hidden costs of health care). Under different health care financing in the US, a three generation study of health and health care has also shown

the cost of health care for families with young children. Of the three generations this 'married child' generation were those least able to meet the costs of health care at a time when the author estimated that they probably had the highest need of such care (Litman, 1971). From all of this it is obvious that the amenities and services available to young families is of importance in understanding their child health options and actions.

From the basic structural aspects of family and family circumstances the discussion now turns to focus on the child and the relationships within the family.

3.2.C. General Family Environment of Children

Birth of the Child

The circumstances of the conception and birth of a child into the family obviously influence the experience of that birth. Parenthood is a stressful undertaking in any circumstances (Liebenberg, 1967). However unplanned pregnancies are associated with single mothers, with poorer physical health and more smoking during pregnancy (Kruk and Wolkind, 1983) and with poorer child health at one year old (Mednick et al, 1983).

Support during pregnancy is an important asset to expectant mothers. The impact of support during pregnancy is especially evident when life circumstances are not ideal. For those with numerous life stresses 33% of those with social support and 90% of those without social support were found to develop complications of pregnancy in a study by Nuckolls, Cassell and Kaplan (1972). At childbirth itself the presence of a supportive companion, whether this person was known or unknown to the mother, resulted in easier and shorter labours (Henneborn and Cogan, 1975; Sosa, Kennel, Klaus, Roberson and Urrutia, 1980). Following in the same vein more optimal interactions between mother and child in the first few months of life came about in situations where mothers' partners/husbands were supportive (Crnic,

Greenberg, Ragozin, Robinson and Basham, 1983). In a complimentary fashion frequent marital communication about the baby was associated with higher paternal involvement with the baby, a finding that Belsey (1979a) attributes to the mother's encouragement of father's role by highlighting aspects of the baby's development.

Parenting

The environment in which the young baby lives is framed very much by the parenting views which his/her caretakers adopt. Parenting as a life skill is one for which there is typically no training and few resources available for advice and guidance according to Forehand, Walley and Furey (1984). Yet parenting is a fundamental factor in the shaping of all of our lives. Parenting styles have been seen to exhibit considerable continuity throughout childhood (Roberts, Block and Block, 1984) and indeed the effects of parenting in one generation are clearly carried into the next generation; as Downes, Skuse, Rutter, Quinton and Mrazek (1985) outline in a comparison of the parenting skills of those mothers raised in institutions with others. They found that mothers raised in institutions were not as adept at picking up cues or responding in ways which circumvent difficulties with their children, instead they provided more confrontational and immediate forms of control. That the effect of parenting on children is considerable is seen in that it overrides the impact of other influences such as material disadvantage or different family structures on children (Quinton and Rutter, 1984b). Factors such as high levels of stressful life events distract parents from the role of caretaking their children (Zussman, 1980). In the health area parenting styles certainly influence behaviour patterns such as nutrition and exercise (Pratt, 1976); the types of patterns which Belloc (1973) shows to be important in terms of current health and ultimate longevity. With illness also indifferent parents are found to have children whose disease is less well controlled (Khurana and White, 1970).

Parent/Child Interaction

A factor which needs to be taken into account when discussing parenting is the transactional nature of child development. Sameroff and Chandler (1975) stress the importance of the reciprocal relationship between the child and his/her environment. Rutter (1978) found that it was the combination of a disturbed parent and a child with less desirable temperamental characteristics which resulted in the child being a target of parental criticism. In the same vein it has been observed that childhood illness is a trigger for child abuse (not of the sick child necessarily) in already stressed families and the evidence suggests that it is illness which leads to abuse and not vice versa (Lynch, 1975; Sherrod, O'Connor, Vietze and Altemeier, 1984). While these examples illustrate the extremes of transaction they do make the point of the bidirectional nature of child parent influence.

Marriage

The parent-child relationship exists in a wider family context. Most families are based on marriage or some similar dyadic relationship. The importance of marriage is shown by the fact that marital satisfaction has one of the strongest associations of any domain with measures of overall happiness (Campbell, 1981).

The influence of this basic relationship on the development of children has been well documented. Behaviour problems in childhood are more common where there are marital problems (Johnson and Lobitz, 1974; Oltmanns, Broderick and O'Leary, 1977) and the chances of child behaviour problems given marital problems is higher than having marital problems given a difficult child (Emery, 1982) suggesting that marital problems lead to child management problems more commonly than vice versa. The quality of the marital relationship influences both the mother's and father's interactions with their child as was discussed earlier.

Even in the hospital context, quality of marriage was a significant predictor of the frequency of maternal visiting of premature infants (Minde et al., 1977, cf. Belsey, 1981).

Marital relationships and parenting styles are two aspects within the overall social context of the family. This overall environment is briefly considered.

Family Environment

Family environment has been conceptualized in a myriad of ways from the sociological to the psychological. A major research problem has been the sophistication and/or idiosyncrasy of such measures (Miller, Rollins and Thomas, 1982). This prevents useful comparisons across studies to build up a general picture of dimensions of families across circumstances. A recent tool which has been devised to assess the social climate of families has considerable potential in its relatively straightforward self-report format yet with a sufficiently fruitful and multi-dimensional content which can go some way towards acknowledging the complexity of family relations. This measure is the Family Environment Scale (FES) devised by Moos (1974). It consists of ten family dimensions collapsed into three broader categories of interpersonal relations, directions of personal growth employed by families and organisational structure of the family. The measure has been used to devise different family typologies for research and clinical purposes (Billings and Moos, 1982; Moos and Fuhr, 1981). Such typologies from community samples provide useful profiles from which to consider family groups in the present study.

The social climate of the family is also reflected in family behaviours which are influenced by the roles adopted by different family members. A major set of family behaviours dictated by these roles constitute the work done in and for the family.

Family Work

In the context of the family type under discussion here - that of families with young children - family work consists both of general household work and child care. While there is increasing discussion of the symmetry of modern family arrangements in relation to family work roles (see Young and Willmott, 1973), research evidence still suggests that women shoulder almost all of the housework burden in families regardless of their own labour force status (Tivers, 1985). While child-centred tasks are shared more often than household jobs (Harper and Richards, 1979) it has also been found that households with young children are particularly asymmetrical in their overall division of household tasks (Jowell and Airen, 1984). Such lack of assistance in home and child care from men is significantly associated with poor life satisfaction for women (Tivers, 1985). Household role also has a greater impact on depression levels than do marital and occupational roles of women (Kandel, Davis and Raveis, 1985). These authors summarized the strains involved in the household role as non-reciprocity, inadequacy of rewards, social isolation and time overload.

Family Employment

Work outside the family context is another aspect of the daily lives of families which has an important bearing on the overall family environment of young children. Employment serves a number of functions for the family itself. It provides financial as well as psychological and social functions for those individuals involved - functions which in turn influence the family itself. The positive influence of employment in the family can be seen for women in that employed women have better psychological and physical health (Thoits, 1983; Verbrugge, 1983) and for children in that children of employed mothers have fewer behavioural problems (Osborn, 1983). Conversely children of unemployed fathers had significantly higher rates of

hospital admission than would be expected (Brennan and Stoten, 1976). The impact of unemployment on men has also been documented in poorer psychological and physical health for the unemployed (Gore, 1978). At an epidemiological level, unemployment has also been associated with childhood mortality (Brennan and Lancashire, 1978). In all, then, employment or the lack of it, has important implications for each member of a family unit.

Leisure and Social Activities

Of equal importance to work and employment in family life are leisure and social activities. This importance has been recognized of late in an emphasis on factors which promote rather than militate against psychological and physical health. The benefits of social activities were initially most clearly observed in Berkman and Syme's (1979) community study. Here social interaction was significantly associated with mortality in a nine year follow-up study. Even controlling for initial health status and health behaviours, those who had less social interaction were more than twice as likely to die in the nine year period than those with high levels of social and community involvement. Presumably being involved in the community through leisure and social activities provides such resources as information and advice, reassurance, distraction and general self-enhancement. Among other things, models of appropriate health and parenting behaviours should be available to young families in the wider context of leisure and social activities (Cochran and Brassard, 1979). In the context of young children the level of family interaction outside the home influences the quality of the child's socialization experiences and parent-child interactions (Powell, 1979; Wahler and Afton, 1980). In Wahler and Afton's study for example, mothers of more socially isolated families displayed more oppositional behaviour with their children. Children of socially isolated families are also more often victims of abuse (Garbarino and Sherman, 1980). The salience of social integration is seen since this potential for child abuse

can be arrested by providing support systems. One such intervention with high risk families showed that both child abuse and accident levels could be decreased by providing long term support systems (Gray, Cutler, Dean and Kempe, 1977).

In terms of health actions socially isolated families are high users of health services such as Casualty Departments in a crisis capacity (Audren and Rosenqvist, 1985) but are less likely than others to use preventive services such as post-natal checkups and immunizations (Bullough, 1972). These studies underline the many positive attributes arising from having social contacts. As Weisman (1979) suggests 'social contact is also a social contract' providing models of what is appropriate and acceptable behaviour in various spheres. In one instance, that of the decision to have children immunized, an early study shows that the decision depends very much on a mother's perception of how her peers will act in the same situation (Merrill, Hollister, Gibbons and Haynes, 1958). In all, the social contacts available to families influence their child health care and child care generally.

3.2.d. Family Health

The final family dimension which has important implications for the health and development of the child is family health itself. Family health can be considered along a number of dimensions - health attitudes, health behaviours and health status. The relative nature of health as a concept is emphasized in Parson's (1972) working definition of health as:

"a state of optimal capacity of an individual for the effective performance of the roles and tasks for which he has been socialized".

Health attitudes can be considered from this vantage point.

Health Attitudes

Attitudes to health come most often from one's own family. Litman's (1971) three generation study found that 42% of people got their health attitudes from their parents, 15% from their spouses, 15% from health personnel and 8% from the mass media. Attitudes to health differ across a number of domains. Litman (1971) found that the older generation associated the maintenance of health with hard work, fresh air and exercise while their grandchild generation felt that vitamins or 'nothing special' maintained health. Fewer than 1% of his three generations viewed regular medical checkups as part of their prescription for good health. Social class differences in health attitudes generally are also evident as discussed earlier with lower social class experiencing and accepting higher levels of ill health.

Some qualifying information which reflects on health attitudes of parents with regard to young children is however emerging. Mayall (1986) suggests from his study of child health care that class differences in such care

emerge from structural rather than health attitudinal features on the part of mothers. Moreover, he suggests that his study of young first time mothers shows the basic similarity in health actions of all mothers because he focuses on the young motherhood stage - a time when the strains on time, energy and finances of large poor families have not yet fully developed. He also reports the results of a DHSS study which showed no class differences in child health clinic attendances in the first year of life. The English Child Health and Education in the Seventies study also showed no class differences in child clinic service usage although it did show poorer uptake of immunization services by age five (Butler and Golding, 1986). Meanwhile Marsh and Channing's (1987) analysis of the use of a single health service by deprived and endowed communities does reflect higher use of emergency, hospital and GP services and lower use of preventive care services by the deprived parents of children under five. Beyond age five childhood consultations to GPs were actually lower for deprived families with hospitalization rates no different than those from more endowed families. It may be, from these findings, that the health care of children across classes is most similar when children are very young with increased divergence of health attitudes and/or behaviours as children grow older and become adults themselves. Thus for instance women who differed on a wide range of personal health behaviours such as breast screening, regular exercise and seat belt use did not differ in their use of immunization for their children (MacClean, Sinfield, Klein and Harnden, 1984). Health behaviours follow on from attitudes or beliefs about health.

Health Behaviours

Health behaviours may well be based on an individual's perception of the usefulness or otherwise of such behaviours as Becker's Health Belief Model states (e.g. Becker and Maiman, 1983). There is a basic distinction between those who see situations as being in their own control or in the control of forces outside themselves.

This dimension is referred to as locus of control; internals viewing events as being within their control and externals viewing the same events as being controlled by factors outside their power (Rotter, 1966). In relation to health those who have an internal locus of control, i.e. they see health as a feature which they can control, are better at making and keeping medical appointments and related activities (Wallston and Wallston, 1978). The powerful impact of the experience of personal control of health is evident in increased physical recovery from illness (Schorr and Rodin, 1982) and even in increased longevity in geriatric populations (Langer and Rodin, 1976). Health behaviours generally are shown to have a significant impact on health status. In personal health terms Belloc (1973) has selected seven health behaviours to study - eating breakfast, regular meals, eating moderately, exercising some, not smoking, drinking moderately if at all and sleeping seven to eight hours daily. He showed that a 50-70 year old having all seven habits had a physical health corresponding to an individual thirty years younger having fewer than three habits. In other words a forty five year old individual followed five and a half years after the original study who followed four to five of the aforementioned health behaviours had a life expectancy of seventy three while with six to seven habits the life expectancy was seventy eight. Health behaviours of one individual within the family may also have an impact on other members of that family. Smoking by mothers as a specific unhealthy behaviour has been shown to influence infant alimentary and respiratory illness levels even above the effects of major factors such as social class (Ogston, Floren and Walker, 1987). Besides influencing health directly, health behaviours have an indirect effect on children's health in their modelling capacity for instance. One example is smoking which is more commonly taken up by the children of smokers (Morgan and Grube, 1985). Pratt (1976) outlines the role of the family generally as educators of children in a range of health behaviours.

One major category of behaviour pertaining to health is the decision to seek advice from others. Much has been written about the lay referral system in deciding what is appropriate action for any particular health problem (McKinlay 1973); Salloway and Dillon 1973).

The vast majority of health problems are ignored or treated by self-medication, for instance most adult gastroenteritis is treated with analgesics and counter irritants (Wadsworth, Butterfield and Blaney, 1971). In deciding to seek medical advice for children the mother takes the decision most often (65% of the time) followed by father (16%) and by joint parental decision (13%) of the time (Litman, 1971). At the level of hospitalization the doctor makes the decision if and when 88% of the time. When seeking advice for health problems there is often a perceived patient choice between GPs and Casualty Department hospital services. Those using Casualty Departments were found to have low expectations of care for their problem by GPs and to anticipate referral by a GP to casualty for their problem in any case. Five per cent (5%) of the group were unable to contact their GP (Wood and Cliff, 1986). Difficulty in contacting GPs by having no telephone also led to Casualty Department usage (Mayall, 1986) as did dislike of deputizing services used by GPs outside of surgery hours (Acheson Report, 1981).

Health Status

Health status in families can be considered in psychological or in physical terms. There are strong associations between these two types of health (Barquero, Munoz and Jaurequi, 1981). Levels of both psychological and physical health problems do now appear to be higher for women even after differences in illness behaviour and professional preconceptions are considered (Gove, 1984). Gove also summarizes evidence suggesting that for mental health at least, poor mental health is associated with the nurturant role that women occupy in their care of small

children. The stress of small children on the mental health of mothers is also evident in Brown and Harris's (1978) study of depression in women: in situations without other problems, 7% of mothers with young children were depressed while 2% of those without children were depressed. Where other stressors were in existence, 17% of women without children, and 43% with children, were depressed. While evidence on the levels of depression of mothers with young children in Ireland is not available, the one year period prevalence of depression in the 18-65 age group of urban women is 17.9% (Cleary, 1986).

Women in the role of caring for children are likely to feel significantly more run down and tired than men (Gove and Hughes, 1979) but more often self-medicated for physical health problems since they continue to be relied upon in the household when sick (Litman, 1971). These women are also less likely to seek medical help for psychological problems (Goldberg, Kaye and Thompson, 1976).

The health problems of women take their toll on children too. Depressed women are less likely to initiate or encourage conversation in young children (Puckering, Mills, Cox and Pound, 1985). Accidents to children are more common in families where the mother has psychological problems, the ratios being 2.2:1 for lower class and 5:1 for middle class families (Browne and Davidson, 1978). Lower class families have 4.6 times as many accidents as their middle class counterparts generally, reflecting the higher levels of stress in lower class families even without maternal psychological problems. The authors here point to the transactional nature of the psychopathology/accident relationship suggesting that increased accidents are not just due to lack of supervision but due also to changes in the behaviour of the child in response to a disturbed mother. In medical terms mothers on psychotropic drugs also have children with more respiratory illness consultations to the GP (Howie and Bigg, 1980). Stress in the family generally has also been shown to give rise to streptococcal throat infections in

children; such infections were four times more common in children in the fortnight following stress than in the preceding fortnight (Meyer and Haggerty, 1962). In all then family health attitudes, behaviours and status are a function of other influences both inside and outside of the family itself.

Having outlined a wide range of research findings on the aspects of families which influence the health and development of children, emphasis will now turn from the aspects to be assessed in the present study to the methodology of this study.

3.3. METHODOLOGY

The Sample

As mentioned in the general introduction two groups of families were included in this study; those whose children were hospitalized for childhood gastroenteritis and those whose children were treated medically but not hospitalized. For each family the primary caretaker of the child was interviewed. This person was expected to be the child's mother in most cases.

The hospital treatment group was taken from the admission records of January to March 1987 in the hospital under study using the criteria outlined in Section 1: settled children under age two, from West Dublin and with a primary diagnosis of gastroenteritis. Mothers were approached in the hospital if possible and asked to participate in the study. If not contactable during their child's hospitalization, mothers were contacted at home after their child had been discharged from hospital.

The home treatment group were drawn in approximately the same time period from two sources. Firstly, GPs who were interviewed for Section 2 of the study were asked to provide the name of a child patient they had treated recently, without the use of hospital referral, for gastroenteritis. A second group of home treatment patients were acquired from the Casualty Department records of the two children's hospitals under study. These children fitting the above-mentioned criteria who had attended the Casualty Department from January to March 1987 and had been managed by home care were selected. Home care mothers were interviewed in their homes. All mothers were interviewed by the same researcher (HM).

Study Measures

Following from the research literature outlined in the introduction the following topics were investigated (see Appendix 3 for the mother's interview schedule).

Family Structure: Family structure information consisted of basic demographic information on the various family members such as age, education, occupation and marital status (section A, Interview Schedule). Family circumstances such as housing, amenities and neighbourhood accessibility to services were also included in the interview (section H).

Index Child's History: The development of the child in question was assessed with a variety of information items on the birth, feeding, temperament, accidents and immunizations of the child (section D).

Parenting: Parenting experiences, information, sources of advice and satisfaction were queried (section E).

Marriage: The status and level of satisfaction with marital or other adult dyadic relationship was assessed (section F).

Home Situation: Questions relating to the level of help and satisfaction with home activities were included here along with a measure of family environment (section G).

In the context of this wide ranging interview, presentation of the complete ninety item Family Environment Scale (Moss, 1974) was not possible. Instead the author chose twenty items representing the ten subsets of the scale. Pairs of items were selected for each subset providing two relatively opposing statements about the dimension in question and mothers were asked to decide which statement best described their family. For example the family

cohesion dimension is assessed by "There is a feeling of togetherness in our family - There is very little group spirit in our family". (See full scale on page 20, Appendix 3).

Occupation/Income: Employment and income status were queried for the parent(s) in the family (section I).

Leisure: As important features of the lives of parents, leisure activities and social contacts including relationships with parents' families were documented (section J).

Health: Health attitudes, behaviours and current health status were queried. In the case of psychological health a standard research instrument, the General Health Questionnaire (GHQ) (30 item version) (Goldberg, 1972) was used to measure psychological distress (section K).

Stressful Life Events: A theme running through the various topics considered in the literature review of family dimensions of relevance to child health has been that of stressors associated with poorer health outcomes. Aside from the detailed analysis of areas from which stressors may arise such as marriage and employment, it was decided to evaluate the lives of families on a broad range of potentially stressful life events. For this the Life Experiences Survey (LES) of Sarason, Johnson and Siegel (1978) was used (section L). The LES consists of a listing of possible events which may have occurred in or to the family (in the previous year in this instance). Events are noted as occurring or not in that time period as is the impact (either positive, neutral or negative) on a seven point scale.

Gastroenteritis Episode: A detailed description of gastroenteritis symptomatology, action, knowledge and beliefs was taken as in section B.

Hospitalization: Mother's attitudes towards and accessibility to hospital were assessed (section C).

Information was also collected in three other ways, i.e. summary variables, interviewer assessments and medical ratings of gastroenteritis symptomatology. These are now outlined.

Summary Variables

Because of the large number of issues addressed in this study, it was felt that summary variables meaningfully combining numbers of measures would be useful in seeing overall difference patterns, if any, in the circumstances of those who had children hospitalized or managed at home for gastroenteritis. These are now outlined.

Family Structure: The structure of the family unit is classified on the basis of the Central Statistics Office (1981) rating to provide numbers of families based on marriage or single parenthood and numbers of families with one or more than one child in a range of age constellations.

Integration of Child into Family: The integration of the child into the life of his/her parents consists of two aspects. The first is the influence of parents on their child. The index is combined from items relating to the birth of the child, feeding methods adopted, levels of age-relevant immunizations and parental relationships with the child. Higher values on this domain indicate children who are more cherished and cared for by parents according to these indices. Scores range from 0-9. The influence of children on their parents is also considered. Items on temperament and early child behaviours are combined here to give a 0-9 rating, high values being associated with children who are easier to manage. Linking the two ratings

then provides an overview of the integration of the child into the life of his parents (values 0-18). It can be seen as a measure of child/environment fit in the family context.

Child Management: Overall child management skills is a variable combining the management of the four distinct areas queried; bedtime, feeding, crying and discipline (values 0-8). Higher scores represent better management.

Marriage: Marriage estimates are divided into two sections. The first is a summary of satisfaction levels with the four marital areas queried; the sharing of interests, decision making, sexual relationship and general compatibility (values 0-20). Higher scores suggest increased satisfaction. The second variable summarizes friction within the marriage: this is scored from the frequency of irritabilities and quarrels and the severity of quarrels. Higher scores on a 0-20 range indicate more friction. The satisfaction and friction scores are combined in such a way as to provide an overall estimate of the marriage (values 0-40). Values of 20+ suggest a mainly satisfying marriage, a score of 20 neither type and scores of less than 20 represent a marriage with more friction than satisfaction.

Child Care: Overall proportions of child care by mothers and fathers are calculated from the listing of child care tasks in section G (p.18, Appendix 3). Ranges are 0-100%.

Neighbourhood: Overall neighbourhood satisfaction is a composite of satisfaction with the fifteen different neighbourhood aspects (values 15-75).

Social Life: Overall numbers of social outings are compiled from social entertainments, club and religious involvements and relative/friend visiting (values 0-8).

Shared Social Life: For those mothers in dyadic relationships, the overall level of sharing of social activities is calculated (values 0-6).

Social Contacts: The range of social contact - strangers, acquaintances, friends and relatives - is summarized with these contacts (values 0-4).

Family of Origin: Relationships of parents with their own parents and marriage situation of the parents of origin combine to provide an estimate of relationships in the parents' family of origin (values 0-12).

Health: Health Attitudes - General health attitudes are summarized from views of control over family health and from a number of individual items (values 0-7).

Health behaviours: Health behaviours are represented by preventative health actions undertaken by the family, the use of contraceptives if applicable and engagement in a number of healthy or unhealthy behaviours such as exercise and smoking (values 0-9).

Health status: Family health status is a combination of medical and psychological health problems, use of curative health services and medication and advice given to family members by doctors. (There is no upper limit on values: higher values indicate more health problems in the family in the previous year).

Life Event Impact: The overall impact of life events on the family in the previous year is calculated by subtracting the negative impact of events from the positive impact. With a neutral situation given a score of 50 and a range of 0-100, scores lower than 50 indicate a family where the cumulative effects of life events have been negative over the year. The reverse is the case for scores over 50.

Other global assessments as described below have been used in the present study.

Interviewer Assessments

Following from each interview the investigator made a number of general assessments of the situation on a 5 point scale. Higher scores indicated better aspects of dimensions being assessed. These ratings are as follows:

- the handling of gastroenteritis by the family
- parenting level
- family health orientation
- family stress
- mothers confidence as a mother
- state of the marital relationship
- maternal depression
- maternal anxiety
- maternal hypochondriasis
- family hygiene (from home or hospital appearance)

These assessments were standardized with the help of the second researcher. Inter-rater reliabilities reached .64 - .98 in early interviews.

Medical Ratings of Gastroenteritis Symptomatology

While a detailed description of gastroenteritis episodes in terms of diarrhoea, vomiting and other symptoms was taken from mothers, an overall assessment of the medical severity of the combined symptoms was felt to be the most appropriate way of comparing the medical problems experienced by the children. Such a complex collection of individual symptoms was not felt to be amenable to summary by some standard formula. Instead it was decided to have each case rated clinically. For this the medical details of each case (as were presented by the mother on one or more occasions to medical personnel) were recorded along with the age of the child on individual index cards. The

number of times presenting to medical personnel was clear but no treatment information was provided so that hospital and home care cases were indistinguishable. No social or psychological background information was available either thus ensuring that cases were rated on the merits of the medical problem itself. The six available doctors in the hospital under study were provided with a set of these cards such that each card was rated twice and by two different doctors. Doctors were asked to rate the cards on a 1-7 scale with anchor points as follows:

- 1 - 2: very mild and not requiring medical attention
- 3 - 5: mild to moderate requiring GP attention and
- 6 - 7: serious and requiring hospitalization.

The mean values of the two medical ratings was taken as the severity rating for each case.

The findings of the study are now outlined.

3.4. FINDINGS

3.4.a. The Families Studied

A total of seventy nine children fitting the study criteria were hospitalized with an admitting diagnosis of gastroenteritis in the first quarter of 1987. Approximately half of the mothers of these children were contacted in the hospital itself. Two children from one family were hospitalized. The first of these children was chosen for study such that the characteristics of the different family rather than child circumstances would be documented. This resulted in seventy eight families for study. One child was also rehospitalized during the three month period. Only the first episode of gastroenteritis is recorded for this child. Two mothers did not wish to take part in the study - one who had taken her child out of hospital against medical advice and one mother of a multi-problem family in which there was suspected non-accidental child injury.

Forty five of fifty two GPs interviewed provided a family to the study. The remaining six GPs did not do so for the following reasons - two did not wish their patients to be involved in a study and four were unable to provide a patient fitting the study criteria in the time available to them.

Casualty Department records revealed twenty seven suitable children at hospital A and nine suitable children at hospital B. Due to the time constraints on the study it was decided to interview only as many home mothers as hospital mothers (N = 76). Thus Casualty Department children were selected at random from the suitable cases to make up seventy six home management interviews. In two home cases the child provided was in fact two children - two sets of twins, each twin with gastroenteritis. For these, information was collected with reference to one of the children only, to prevent family circumstance duplication. Here again two mothers did not take part in the study; one mother was

written to on her doctor's request and did not reply, a second mother upon contact insisted that her child had not had gastroenteritis. In the final sample twenty one children were from hospital A and nine from hospital B. In all there was a 97% response rate from both groups. In two families the father was interviewed; as primary caretaker in one family and as joint caretaker in another. In another family the grandmother was the primary caretaker and was thus interviewed. For the remainder of the study the term 'mother' is used to denote the person interviewed in the family. Forty two mothers were interviewed in hospital, an average of 1.7 house calls to the other families were required to arrange and complete interviews which lasted approximately one to two hours. In a small number of cases some information was not collected from mothers; in one case because the mother did not wish to discuss her marriage, once because the mother was too distressed generally and in a number of cases because another person was present preventing questions about more personal aspects of the woman's situation. For this reason much of the information is presented in percentage form to provide more appropriate comparisons across groups.

Before considering the information gathered in the present study a comparison of the family structure profile of this sample attending for medical care for gastroenteritis and the general family structure profile of the study area is considered as an overall indicator of the proportions of various family types using medical services for this problem.

Family Structure: Population and Sample Comparisons

The family cycle distribution of the study sample is compared with the population of families in the area under study. Census figures for 1986 were not available thus 1981 Census figures from the area (involving twenty three electoral districts) were provided by the Central Statistics Office. The pattern of distributions is presented in Table 3.1.

Table 3.1 Family cycle distribution of sample children and of the study area based on 1981 Census returns

<u>Family Type</u>	<u>Population</u>		
	Home Sample	Hospital Sample	Total Area: Families
Couples + 1 child only	32 [%]	25 [%]	23 [%]
Couples, > 1 child; all under 15 years	58	58	70
Couples, > 1 child; some over 15 years	1	3	4
Single parent + 1 child	5	11	3
Single parent, > 1 child; all under 15 years	4	3	.02
N =	76	76	23458

Comparisons are made with caution because of the small sample numbers. However, overall figures suggest that couples with a number of children are underrepresented in both GP/Casualty Department attenders and in hospitalization figures for gastroenteritis ($p < .02$). Couples with one child only are slightly overrepresented in the home care but not in the hospitalization sample ($p < .06$) while single parents are overrepresented in home care and even more so in hospital care samples ($p < .001$). Making up 3% of the population of families with young children in this area (by 1981 figures), single parent families constitute 9% of the cases seen in the home sample and 14% in the hospitalized sample.

Inexperience leading to anxiety and caution yet an overall willingness and perceived ability to manage at home may be the reason for the overrepresentation of couples with one child in the home care but not in the hospital sample.

The overrepresentation of single parent families at both home care and hospitalization levels suggests greater problems with the management of child health for this group. Attention is now focused on the findings of the present study. Information in each of the topic areas as outlined in the Methodology Section is presented, concluding with summary variable(s) where appropriate. These summary variables are also considered together at the end as a means of providing an overview of the study findings.

Because of the particular focus of this research the medical aspects of the study are described first.

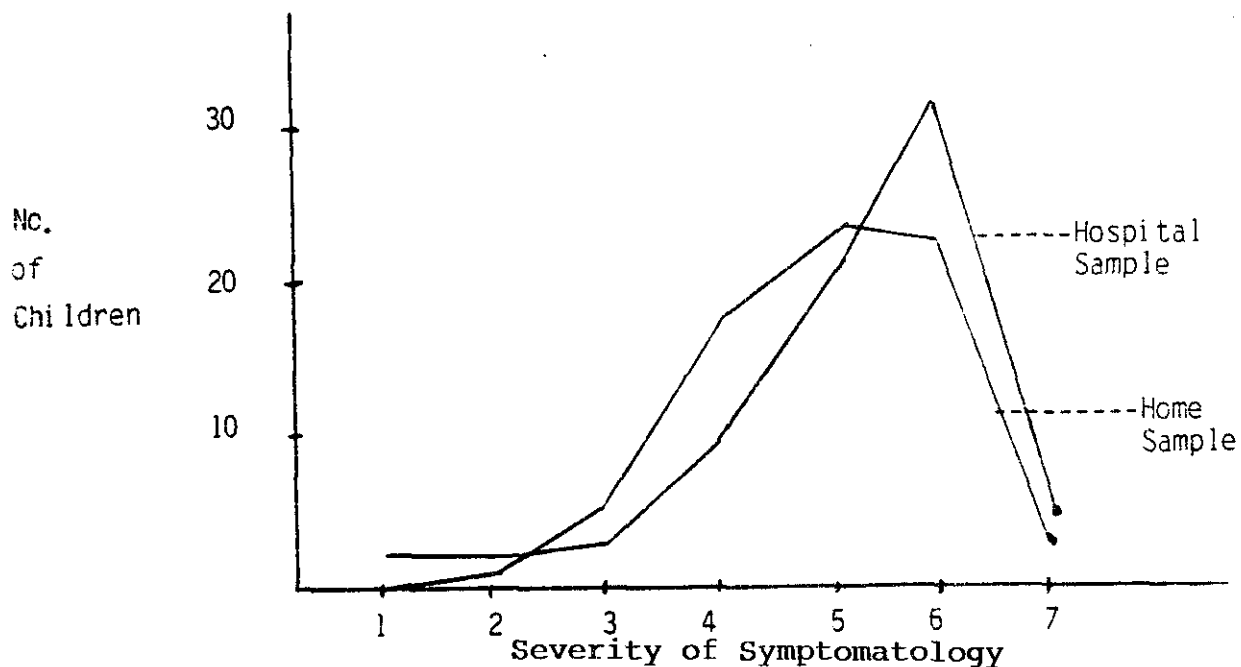
3.4.b. THE GASTROENTERITIS EPISODE

The medical aspects of the situation are now considered. Of primary importance is the relative severity of the medical problems of the two study samples.

There were no age or sex differences in the home and hospital care families. Sixty seven per cent (67%) of hospitalized children and 65% of those in home care were under one year old. Forty three per cent (43%) of those in hospital and 44% of those at home were girls.

Medical Ratings: In terms of medical problems doctors' overall assessment of the severity of children's presenting symptoms did not differ significantly for the two groups ($x=5.16$ for hospital care and 4.96 for home care, $p = .307$). Mean values can often hide diverging patterns on sample variables. Median values provide an indication of the spread of scores on a variable. Median values for the sample were identical (5.0) illustrating that the samples were similar in general severity patterns. Figure 3.1 also shows the similarity of the two groups in medical severity ratings.

Figure 3.1 Ratings by hospital doctors of the severity of gastroenteritis symptomatology of study children



On initial symptom examinations doctors rating the medical symptomatology of children commented on the high levels of reported vomiting in children and expressed the opinion that such reporting is common but normally an over-estimation of the amount of fluid lost by children. However for present purposes doctors rated the symptoms as accurate. This means that the profiles on Figure 3.1 do reflect the relative relationships of hospital and home samples on medical symptoms but not the actual need for hospitalization for gastroenteritis. In fact ratings may be slightly biased in the direction of rating hospitalized cases more severely since 21% of these versus 15% of home care patients reported vomiting all of their fluids. The similarity of groups then despite this reflects all the more the identical nature of the gastroenteritis problems of hospital and home care children. Thus, if medical factors were the only criterion of hospital admission for gastroenteritis, each child in this study could have been cared for at home.

The general aspects of the episode of gastroenteritis and its management are now considered for both groups of mothers.

Symptoms: The gastrointestinal symptoms which resulted in a child being taken for medical care are presented in Table 3.2.

Table 3.2 Levels of symptomatology in children before medical advice was sought

Symptoms	Children		
	Hospital Care	Home Care	
<u>Level (%) :</u>			
Vomiting : some	74	67	
all	21	15	
Diarrhoea : some	84	91	*
> 3 episodes	51	66	
Irritability	64	71	
raised temperature	62	35	*
Lethargy	32	30	
other problems	57	42	
<u>Duration (days) :</u>			
Vomiting	1.30	1.26	
diarrhoea	1.76	1.88	
irritability	1.07	1.59	*
temperature	0.86	0.54	*
lethargy	0.57	0.47	

* $p < .05$ N = 152

There was a tendency for more hospitalized children to have vomiting ($p = .109$), other medical problems such as upper respiratory tract symptoms ($p = .102$) and high temperatures ($p = .045$). Meanwhile more home care children had diarrhoea ($p = .039$). Levels of lethargy did not differ between groups. In terms of length of symptoms hospital care mothers had not contended as long with irritability (approximately a

half day shorter, $p = .039$), but had waited longer to seek attention for raised temperature (half as long again as did home care mothers, $p = .045$). There was no difference in the duration of vomiting for groups before attending for medical care, but home care mothers had contended with diarrhoea for almost a day longer than hospital care patients ($p = .068$).

Help Seeking

Significant differences ($p = .021$) in the sources of initial consultations to medical personnel for these problems reflect the higher use of home visits and self-initiated study hospital contacts of hospital care mothers and the higher use of telephone and surgery access to the GP by home care mothers (see Table 3.3).

Table 3.3 First contact with medical services for gastroenteritis symptomatology

Service	Hospital Care %	Home Care %
Study hospital only	6	-
GP - telephone call only	7	15
- visit to surgery	35	58
- home visit by doctor	26	5
Deputizing doctor - home visit	3	2
Casualty Department	23	20

N = 152

Casualty Department use was similar for both groups averaging 21% of the primary sources used.

There were no group differences in the numbers of mothers initially attending medical services outside of the routine working week (with an average of 20% of visits being at the weekends). However, hospital mothers were significantly more likely to seek help after 9.00 p.m. ($p = .05$).

The main deciding factors in seeking medical help were diarrhoea (for 29 and 42% of hospital and home care patients); diarrhoea and vomiting (17 and 14%); and vomiting alone only in 8 and 10% of cases respectively. On presentation for assessment 43% of hospital care mothers and one home care mother were advised to have their child hospitalized. (The one home mother was forthcoming in requesting the deferral of this action pending another day's trial at home.) Eleven per cent (11%) of the children eventually hospitalized and 16% of home care children were prescribed medications besides anti-pyretics for their symptoms. There was a wide discrepancy in the levels of satisfaction of hospital and home care mothers with medical advice, 64% of hospital care and 89% of home care mothers were satisfied with doctors' advice ($p < .001$).

The overall use of medical services outside of the seventy six hospital admissions is outlined in Table 3.4

Table 3.4 Medical services used by parents for childhood gastroenteritis

Service	Hospital Care (%)	Home Care (%)
Study hospital only	6	--
G.P.	39	55
G.P. and self-refer to hospital	11	--
G.P. and Public health nurse	--	2
deputizing G.P.	13	--
Casualty-(G.P. not available)	1	6
Casualty	15	15
G.P. and Casualty	14	20
deputizing G.P. and Casualty	1	2
Average no. of visits N = 152	1.84	2.14

The same pattern of use as in Table 3.3 is evident. A total of 140 medical service visits were undertaken by hospital care mothers (leading to seventy six hospitalizations) and 163 visits were undertaken by home care mothers (with no hospitalizations) to resolve problems of the same medical severity.

No differences exist between the average visiting frequency of the two groups of mothers which might explain the management of one group of children at home while the other group were hospitalized.

Symptom Duration: The average duration of gastroenteritis symptomatology was 10.0 and 11.6 days for hospital and home care children. There was no significant group difference in the length of symptoms, if anything there was a tendency in the direction of home care children having longer illnesses ($p = .135$). Twenty six per cent (26%) of each group had their symptoms resolved within a week, 80% of hospital care and 62% of home care within two weeks and 93 and 82% respectively within three weeks.

Worry: Levels of concern about their child's symptoms differed significantly between groups with 66% of hospital and 45% of home mothers reporting being very worried about their child ($p = .027$). No obvious reason for this difference is available from an examination of the reasons given by both sets of mothers for their worries. The largest factor for both groups was that the symptoms were not clearing (averaging 30%) followed by the fact that the child was not eating (averaging 11%). Furthermore similar numbers of mothers had someone available to talk about the episode to them if worried (52 of the hospital mothers and 48 of the home mothers). Hospital mothers were more likely to see gastroenteritis as more severe than home care mothers ($p = .041$), 52% and 34% respectively seeing gastroenteritis as severe or very severe.

Previous Experience: Similar numbers of mothers had had gastroenteritis among their children already ($N = 24$ and 21). Similar numbers also had not had any information on gastroenteritis before this episode ($N = 13$ and 8). In terms of poor memories of, or information on, gastroenteritis which might upset or worry mothers, numbers of mothers who remembered disturbing examples of gastroenteritis were the same in each group as seen in Table 3.5.

Table 3.5 Bad experiences of gastroenteritis in own family and in other families in the past

Gastroenteritis Experience	Hospital Sample		Home Sample	
	Own Family	Other Family	Own Family	Other Family
	N	N	N	N
- prolonged illness	10	2	4	5
- life threatening	2	1	1	4
- death	4	1	0	6
Number of bad experiences	16	4	5	15

N = 152

However, the pattern of experiences is very different. While there are similar group levels of awareness of serious instances of gastroenteritis, the hospital care group have encountered the majority of these serious instances in their own families while the home care group knows of them mainly in relation to non-family members.

Knowledge: Knowledge of the causes of gastroenteritis generally was also different for the two groups as Table 3.6 illustrates with more than twice as many hospital care mothers not knowing what the causes were ($p = .036$).

Tabel 3.6

Views on the common causes of gastroenteritis

Cause	Hospital Sample %	Home Sample %
Don't know	24	9
bug/germ/virus	39	45
hygiene (lack of)	26	37
other	11	9

N = 152

However, despite less knowledge of the causes of gastroenteritis by hospital mothers, similar numbers of hospital and home mothers knew what the general treatment for gastroenteritis was. Before this episode 66 and 65% of respondents knew of fluid replacement as the standard treatment for gastroenteritis with 24% of hospital and 14% of home care mothers specifically mentioning Dioralyte as the appropriate treatment.

Before continuing with the general comparisons of hospital and home care families, an outline of features related to the hospital experience of children is presented.

The Hospital Course of Gastroenteritis

The seventy six children hospitalized for gastroenteritis were admitted with problems in addition to diarrhoea and or vomiting as seen in Table 3.7.

Table 3.7 Incoming problems (besides diarrhoea/vomiting) of children admitted to hospital for gastroenteritis

Other problem	Percentage of Children
None	30
Nappy rash	4
Temperature/URTI	8
Mild dehydration	9
"Fair" dehydration	7
Borderline dehydration	7
"IV needed"	3
Convulsions	3

N = 76

These problems are as noted by the referring doctor. When hospitalized only one child of seventy six required intravenous treatment with one other child being borderline. Hospitalized children spent an average of 6.3 days in hospital (range 1-27), 64% of children were home within seven days and 96% within fourteen days. Three children were discharged from hospital by parents against medical advice, one six hours after admission. Six children were also discharged early according to hospital records. This was generally on the request of parents to be allowed to continue rehydration at home. Five children were detained longer than was necessary for the clearance of gastroenteritis which resulted in seventeen extra hospital bed days for these five children. Children were detained because of various difficulties in the home situation.

The general symptom levels of children during hospitalization as taken from nursing and medical records are presented in Table 3.8 alongside equivalent information for the 1964-1966 cohort of children hospitalized for gastroenteritis as outlined earlier. Diarrhoea is very common at both times. The 1964-1966 study does not report the numbers of children on intravenous feeding but provides a rating of poor hydration, which is taken to be generally equivalent to intravenous use in the present study.

Table 3.8 Presence of medical symptomatology in hospitalized children from this study and in a 1964-66 gastroenteritis study (Medical Research Council)

Symptoms present/indicators	This Study Sample (%)	1964-1966 Study Sample %
Diarrhoea	97	91
Vomiting	19	27
Temperature 100 C	31	51
Poor hydration	1.3*	1.3
Mean length of stay (days)	6.3	34.0
N =	152	1,207

* Taken as equivalent to those on IV fluids.

Thus, poor hydration is similar in both groups. However, vomiting and high temperatures are more common in the present study sample. This cannot be explained by a more selective sample in the present day since numbers of births are almost identical in the mid-1960s and the mid-1980s and since many more children are now hospitalized for gastroenteritis. Increased vomiting and temperatures may instead be an indication of higher levels of rotavirus infection in the present sample collected over the winter months.

All children in the present study were admitted to the hospital with a primary diagnosis of gastroenteritis. Hospital diagnosis on discharge was gastroenteritis only (63%), gastroenteritis and upper respiratory tract infection (20%), gastroenteritis and other problems such as anaemia and pharyngitis (16%). One child was discharged with a diagnosis of pneumonia.

The hospital in question has an information booklet for distribution to patients and their families attending the hospital. This booklet is distributed on admission. Thirty nine per cent (39%) of mothers said they received the booklet when their child was admitted, another 26% were given a leaflet outlining the hospital telephone number and visiting times along with bus routes to the hospital. Thirty five per cent (35%) of mothers were given no written information.

Attention is now focused on aspects of childhood hospitalization for the two groups of mothers.

The Hospitalization of Children

Attitudes

Attitudes to the hospitalization of their child for the present episode of gastroenteritis were significantly different for hospital and home care mothers ($p < .001$), hospital care mothers being significantly more in favour of hospitalization. Twenty two per cent (22%) of hospital care mothers and 7% of the others were/would be very happy having their child hospitalized and 58 versus 80% were/would be very unhappy. However, their general reasoning about

hospitalization for gastroenteritis indicated that 20% of hospital and 18% of home care mothers thought that hospital was the best place for its management. In terms of opinions on the harm caused to young children by hospitalization there were no differences in the views of hospital and home care mothers ($p = .403$) (see Table 3.9). These views are strikingly similar to those found in a large Welsh study on parents' attitudes to hospital by Earthrowl and Stacey (1977).

Table 3.9 Mothers' views of the effects of hospitalization on children in Dublin and Welsh samples

Harm Caused	Dublin		Wales
	Hospital Care %	Home Care %	Hospital Care %
Don't know	1	2	0
None	1	-	2
Not much	11	9	4
Some	28	26	34
A great deal	58	64	60
N =	76	76	1,368

cf. Earthrowl and Stacey (1977)

Access

Similar numbers of hospital and home care mothers did have or would expect to have problems in getting to visit their children regularly in hospital as seen in Table 3.10.

Table 3.10 Obstacles to hospital visiting by mothers

Obstacle	Hospital Care %	Home Care %
none	24	21
practicalities	18	06
work	11	20
children	47	53

N = 152

However, for home mothers obstacles are more likely to involve employment than for hospital care mothers. Similar numbers of mothers would also be able/willing to spend most or all of the day with their children in hospital (Table 3.11), although more home mothers could actually stay in overnight.

Table 3.11 Mothers' reported patterns of visiting the child in hospital (actual patterns for hospital and expected pattern for home sample)

Patterns of visiting	Hospital sample %	Home sample %
Stay in hospital	18	43
Stay most of the day	29	9
Daily visit	43	43
Other	10	5

N = 152

Transport was considered in this study as being of particular relevance to the access of mothers to their child in hospital. Table 3.12 shows levels of difficulty in access to, and finance for, transport to hospital by mothers.

Table 3.12 Transport difficulties for parents when/if visiting children in hospital

Level of difficulty	Access to transport		Finances for Transport	
	Hospital Care %	Home Care %	Hospital Care %	Home Care %
Very difficult	30	30	33	19
Quite difficult	19	13	19	17
Not very difficult	8	8	4	16
Not at all difficult	43	50	44	48

N = 152

There is no difference in the levels of access to hospital for the hospital and home care mothers as would be expected in this urban sample. It is however noteworthy that in this urban sample, who lived fifteen miles at the most from the hospital, 30% of both groups did/would find it very difficult to get to the hospital in question. There was a trend ($p = .110$) indicating that mothers who did have children hospitalized found it more difficult to pay for transport to the hospital than would mothers of home care children. In this respect more home care mothers had family cars than did hospital care mothers (58 vs. 36%, $p = .01$).

Some general characteristics of the two groups of families are now described.

3.4. C FAMILY STRUCTURE/CIRCUMSTANCES

Family Structure: The general demographic characteristics of the two sets of families are presented in Table 3.13.

Table 3.13 Demographic characteristics of hospital and home care families

	Hospital Care	Home Care
Marital status (%)		
married/cohabiting	82	89
single	14	9
separated	4	2
Mother's age (\bar{x})	26.3	28.2*
Father's age (\bar{x})	28.1	31.1**
Length of marriage (\bar{x})	5.3	5.4
No. of children under 15 years (\bar{x})	2.3	1.9*
<u>Education levels: (%)</u>		**
Mother - basic	55	28
- Inter. cert.	20	30
- Leaving cert.	23	38
- third level	3	5
Father - basic	57	39 *
- Inter. cert.	21	21
- Leaving cert.	21	30
- third level	2	9
<u>Occupational Status: (%)</u>		*
Mother - professional	8	8
- whitecollar	64	87
- manual	29	6
- never worked	--	--
Father - professional	13	29
- white collar	4	53
- manual	17	10
- never worked	6	8

* p < .05 N = 152
 ** p < .01

There were no differences in the marital status patterns of hospital and home care families; the majority of women in both groups were married with seventeen single mothers in the sample overall.

Hospital care mothers and fathers were significantly younger than home care parents. For those who were married, however, there was no difference in the length of marriage of the two groups. Hospital care families however had larger families. They also had significantly more members of the non-nuclear family living in their households ($p = .025$). The majority of children in the sample had a father figure. For all but one child in each group this was the biological father of the child. Ten of seventy six hospitalized children and six of seventy six home care children were being raised without a father figure. These figures do not significantly differentiate the two groups.

Referring to Table 3.13 again, hospital care families were composed of mothers and fathers with less formal education and of mothers with lower occupational status. There was also a trend indicating that hospital care fathers have lower occupational status ($p = .104$). A phenomenon of present day life is the presence of ten fathers of young families who had never had work experience or an occupational status, the figures not differing between groups.

There were no differences in the family spacings between the study child and the next child. Twenty five mothers in each group had no other children while twenty four hospital care mothers and sixteen home care mothers had at least one child within a two year spacing from the study child.

Family Material Circumstances

Sixty seven per cent (67%) of hospital care and 38% of home care families lived in local authority accommodation, a difference significant at $p = .001$. The remainder lived in

privately owned/mortgaged accommodation. In this study area local authority accommodation consists entirely of houses thus no families lived in flat accommodation and all families had access to a garden area for their children. There were no differences in the length of residence of the two study groups; they had lived an average of 4.7 years in their present accommodation. Neither was there any difference in levels of overcrowding. Overcrowding was estimated using local authority housing requirement guidelines. Thus a married/cohabiting couple require a separate bedroom as do children over ten of opposite sexes. Up to two children under age ten can share a bedroom while single mothers and their children require separate rooms. In all ten hospital care and eight home care families lived in overcrowded conditions by these guidelines. Levels of family amenities and circumstances for both groups are presented in Table 3.14.

Table 3.14 Family amenities and circumstances for hospital and home care groups

amenity/circumstance	Hospital Care %	Home Care %
fridge	95	97
washing machine	81	83
spin dryer	31	43
T.V.	96	97
telephone	29	56 **
car	36	58 *
kettle only to heat water	7	5
radiator heating	30	56 **
housing problems	12	11
poor furniture	18	10 **
untidy house	9	11
satisfied with house	63	74 *

* p < .05 N = 152

** p < .01

In all, hospital care families live in poorer circumstances and are less satisfied with their homes. Levels of satisfaction are also considered for varying aspects of the family's neighbourhood (see Table 3.15). Only two of fifteen dimensions differentiate hospital and home care groups, these reflect the greater satisfaction of home care mothers with their neighbours and with noise levels in the area. However overall satisfaction levels, summed from these variables, also reflect higher levels of satisfaction among home care mothers with the neighbourhood in general.

Table 3.15 Mothers' satisfaction with aspects of their neighbourhood

	SATISFIED	
	Hospital Care %	Home Care %
Closeness to work for members of the household	58	57
Closeness to shops	65	65
Your neighbours	64	80
Closeness to schools	82	86
Closeness to health services	62	79
Privacy	75	72
Closeness to your family	40	46
Closeness to your friends.....	53	63
Space for children	74	83
Bus service	36	48
Levels of vandalism	44	45
Levels of crime against the person	65	65
Recreational/Entertainment facilities	39	49
Air quality	88	88
Noise levels	80	89
SATISFACTION OVERALL	64	91

N = 152

Questioned specifically about their relationships with their neighbours 23% of hospital care and 8% of home care mothers reported being on bad terms with, or not mixing, with their neighbours (p .001).

Attention is now focused on aspects of the young child in the family context.

3.4.d. General Family Environment of Children

Pregnancy and Birth

There were no differences in the circumstances of the pregnancy and birth for the two groups of mothers. The numbers of pregnancies wanted, the timing of the pregnancy, attitudes to the pregnancy and birth, and the timing of mothers first contact with their children were similar for both groups. Support from fathers and separations of mother and child in the first month were the same for the two groups. For example, 25% and 21% of hospital and home care mothers did not wish to be pregnant at the time of conception, 81 and 76% respectively were happy with their pregnancy overall and 83 and 89% of fathers were supportive/very supportive at the birth of the baby.

The number of underweight babies was small and was similar in both groups (N = 7 for hospital group, and N = 5 for home group) while there was a slight tendency in the direction of more home care babies being born prematurely (nine home care versus three hospital care, $p = .077$).

Breast feeding

Following birth there were significant differences in levels and duration of breast feeding for the two groups of children, home care children being breast fed more often and for a longer period ($p = .009$). Table 3.16 shows these patterns.

Table 3.16 Incidence of breast feeding in hospital and home care children

If Breast Fed	Hospital Care %	Home Care %
No	81	55
Yes - less than 1 month	8	26
- less than 3 months	8	17
- more than 3 months	3	3
N = 152		

Reasons given for breast feeding centred on the theme of "breast is best". Reasons for not breast feeding are outlined in Table 3.17. The main reason given by hospital care mothers was one of discomfort with the idea or the practice of breast feeding while home care mothers most often cited the restrictions imposed on their time if they were to adopt breast feeding. The level of breast feeding in this group (32%) was similar to the 33% found in a national survey of infant feeding practices by the Health Education Bureau (McSweeney, 1986).

Table 3.17 Main reasons for not breast feeding

Reasons	Hospital Care %	Home Care %
Don't know/no reason given	22	27
<u>Why not breast feeding?</u>		
Used to bottle/never considered breast	14	2
Embarrassed/don't like breast feeding	32	7
Not encouraged in hospital	-	7
Tied down/return to work/other children	6	29
Unsuccessful/previous bad experiences	12	7
Sick mother/baby	14	20
N =	65	41

Immunization

The levels of immunization for the two groups of children (of similar ages, $x = 10.2$, SD 6.3 for hospital care and $x = 10.7$, SD 6.4 for home care groups) was significantly lower for the hospital care group ($p = .011$). Levels of immunization for both sets of children are shown in Table 3.18.

Table 3.18 Levels of immunization for hospital and home care groups

<u>Immunization Level</u>	Hospital Care %	Home Care %
B C G before age 3 months	95	98
+ 3:1 or 2:1 x 1 before age 5 months	80	96
+ - " - x 2 before age 7 months	57	94
+ - " - x 3 before age 11 months	59	69
+ measles before age 18 months.	22	53
No immunizations	14	5

N = 152

The age limit allowed in this study before children were regarded as not being immunized is relatively generous. Measles immunization is recommended at age fifteen months. Children were not counted as having missed their measles injection until they reached age eighteen months. This was to allow for some time latitude to mothers and services intending to provide the appropriate immunization to children. Significant differences in immunization levels do not exist in the first six months of the lives of the two groups of children but differences increase with time between the two groups after this age. The uptake of measles immunization in the home care sample (53%) corresponds with estimates of the general community uptake of 50% (Boland, 1987). Forty two per cent of hospital and 21% of home care mothers give childhood illness as the main reasons for not

availing of immunization generally or a particular immunization. Seventeen per cent (17%) of home care mothers not availing of immunization reported fear as their reason as did 2% of hospital care mothers. Eleven per cent (11%) of hospital care mothers suggested (incorrectly) that the child was too young for the immunization queried. Many mothers however did not articulate reasons for not availing of immunizations.

Temperament

In terms of the general behaviour and temperament of children there were no group differences in crying, feeding and sleeping problems when these children were young (under six months old). An average of 16% of the families had problems of crying in these children, 13% had feeding problems and 16% had sleeping problems.

Numbers of serious accidents encountered by children did not differ across groups. There were sixteen such accidents for hospital care and ten for home care children. Hospital care children were significantly more active than their home care counterparts ($p = .03$). There were no group differences in other temperamental characteristics of mood or adaptability or in children's behavioural/biological regularity. In mothers' overall assessment of temperament there was a trend however in the direction of hospital care mothers rating their children as easier to manage than did home care mothers; 44% of hospital care and 26% of home care mothers found their child of easier than average temperament to manage ($p = .066$).

Relationships

All but 3% of hospital care mothers rated their relationships with their child as better than neutral. However there was a trend in the direction of home care mothers having better relationships with their child, 91 versus 81% having very good relationships ($p = .067$). Relationships of fathers with their children were the same for the two groups; 83 and 93% of hospital and home care fathers having good or very good relationships with their children.

The influence of parents on the lives of their children generally was assessed as was the influence of children on their parents. No group differences in these overall dimensions existed nor did they when these two dimensions were combined to give a measure of conjoint family influences.

Parenting

Experience

The numbers of parents with experience in different facets of parenting are presented in Table 3.19.

Table 3.19 Experiences related to child care/parenting of study mothers

Mothers with experience of -	hospital care %	home care %
children	88	75 *
reading in child care	50	80 *
parental classes	36	63 **
given and read "Book of the Child"	74	87
given and read "Food and Babies"	69	94 †

* $p < .05$ N = 152

** $p < .01$

† $p = .06$

Levels of experience with young children are significantly higher for hospital care mothers with the reverse pattern holding for prenatal class attendance and reading on baby care. The level of prenatal class attendance is particularly low in hospital care mothers (36%). For those mothers who were given health education leaflets pertaining to pregnancy and child care, numbers of mothers in both groups were similar in their use of the "Book of the Child"

- the booklet pertaining to pregnancy, childbirth and child care. There was a strong trend however, ($p = .06$) in the direction of more home care mothers reading the second booklet in the Health Education Bureau series - "Food and Babies". In fact almost all the home care mothers receiving this booklet had read/ used it (94%). Enquiries about a third Health Education Bureau booklet "Play it Safe" revealed that only 2% of these mothers had seen this booklet. The opinions of the mothers in general on the two health education booklets which are widely circulated in perinatal care are outlined in Table 3.20. Most mothers receiving both publications were convinced of their usefulness.

Table 3.20 Use by mothers of Health Education Bureau reading material on pregnancy and child care

Opinion	BOOKLET			
	"Book of the Child"		"Food & Babies"	
	Hospital Care%	Home Care%	Hospital Care%	Home Care%
Booklet: not received	27	22	38	35
not read	19	10	19	4
unsure	5	--	5	2
Read: not useful	3	--	--	4
alright	16	12	11	12
good	16	28	22	18
very good	14	28	8	24

N = 152

Attitudes

Opinions about aspects of baby care were queried in the study. Table 3.21 illustrates the mothers' views - there were no significant differences in beliefs on any of the seven aspects queried.

Advice

The sources of parenting advice for both groups of mothers were similar - families were the main source of advice for both. Beyond this however medical sources of advice were more evident for the hospital care sample (12 vs. 3%) with more non family contacts providing advice for home care families (55% home care and 14% hospital care). Nine per cent (9%) of hospital and 6% of home care samples said they had no source of parenting advice.

Table 3.21 Child health information beliefs of mothers

Child Care Statements	Hospital Care %	Home Care%
A baby needs to be more warmly dressed than an adult	True 55	True 55
It is good practice to prop a bottle so that a baby can feed himself.	35	45
Excitement can often cause a baby to spit up.	82	83
If a baby is fat, you know he is healthy	97	100
The window in a baby's room should never be opened in the winter	45	52
An overdosage of aspirin is a common cause of poisoning in children	63	60
Some babies often spit up after all their feedings.	42	44

N = 152

Role Satisfaction

High and similar levels of satisfaction with their parenting role were evident for hospital and home care groups.

Child Handling

Particular areas of child care appropriate for this age group were queried in this study. These were feeding, bedtime, crying and discipline. No differences were evident in feeding, bedtime and crying problems and handling capacity: an average of 16% of mothers had problems with feeding their children, 30% had settling problems at bedtime once a week or more with 34% having night waking problems weekly. Thirty six per cent (36%) had children who cried often/a great deal. Ninety four per cent (94%) of mothers were able to handle feeding problems, 65% bedtime problems and 67% problems with crying. Discipline problems were not different between groups nor was the handling of such discipline problems by mothers. Twenty two per cent of children posed some discipline problems but these were dealt with by 80% of mothers.

Mothers' use of discipline was similar for both groups. However 24% of hospital care fathers were not involved in disciplining their children in contrast with 7% of home care fathers ($p = .025$).

Irritability of parents with their children did not differ across groups. An average of 25% of mothers and 10% of fathers were irritable with their children on most days of the week.

A summary assessment of the parenting management of the two groups from the variable just described reveals no significant differences in the reported parenting skills of both groups.

Marriage

The marital relationships of the mothers are now considered. Marital relationships can be assessed on their strengths and weaknesses. The negative aspects of such relationships are considered first.

Friction

There was a statistical trend ($p = .103$) suggesting that hospital care mothers were more often irritable with their husbands than were home care mothers. Meanwhile hospital care fathers were irritable with their wives significantly more often than home care husbands ($p = .02$). The frequency of quarrels did not differentiate the two groups nor did the severity of those quarrels either usually or in the extreme. Two hospital care mothers and three home care mothers reported physical violence within the relationship.

Satisfaction

Levels of satisfaction with various aspects of marriage are presented in Table 3.22. Sexual relationships are the one aspect of four queried which differentiate the groups studies. Hospital care mothers are less satisfied with the sexual relationships in marriage.

Table 3.22 Satisfaction with various aspects of marriage

Aspect of Marriage	Hospital Care %	Home Care %
Sharing of interests:		
- share alot/all	42	51
- satisfied	71	73
Decision making:		
- share alot/all	68	84
- satisfied	75	82
satisfied with sexual relationship †	44	66 *
satisfied with general compatibility †	76	82

* $p < .05$ $N = 152$

When overall levels of friction and levels of satisfaction in marriage are summarized, either separately or in combination they result in similar overall patterns for the two groups of mothers. Following from marriage the general home situation of families is considered next.

† Because of the situation in which some interviews took place information on the sensitive issues of sexual relationships and general compatibility was obtained from only 143 respondents.

The Home Situation

General chores

The home situation of families is considered in the levels of support to mothers in varying home and child care tasks and in family environment dimensions (see Table 3.23).

Table 3.23 Number of mothers receiving help with household and child care duties

Type of work	Hospital Care %	Home Care %
Housework	65	62
Shopping	58	55
Child Care - daytime	76	88**
- babysitting	76	91**
- bedtime	53	52

N = 152

** p < .01

In terms of work in the home, similar levels of help are given to both groups of mothers with housework, with shopping tasks and in putting children to bed. However, twice as many hospital care mothers received no assistance with child care to allow them to leave the house during the day. Evening babysitting facilities were also available less often for hospital care mothers - 24% versus 9% (p = .001) of home care mothers having no one available to them to babysit.

Assistance to mothers in child care dimensions is now considered in more detail.

Child care tasks

Information is presented here only for mothers' and fathers' involvement in child care tasks, as the overall level of involvement was small and was not significantly different across tasks for two groups of families. Table 3.24 lists a range of daily and weekly child care activities of parents. Throughout, the pattern is that most of the child care is being provided by

Table 3.24 Involvement of mothers and fathers in child care tasks

Tasks	Hospital	Home	Hospital	Home
	mothers	mothers	fathers	fathers
	No. of days involved weekly			
Getting child up in morning	5.7	5.9	1.1	1.0
Dressing child	5.4	6.1*	1.2	0.9
Preparing child's food	5.6	5.8	0.9	1.0
Feeding child	4.8	5.5*	1.4	1.4
Changing nappies	5.5	5.4	0.9	1.3
Putting child to bed	4.9	4.8	1.4	1.6
	No. of times weekly			
Bathing child	4.8	4.2	0.4	0.6
Playing games	3.0	3.4	2.1	2.6
Taking child outdoors	3.0	3.2	1.2	1.7*
Reading to child	1.3	1.7	0.8	1.2
Babysitting without mother	n/a	n/a	1.1	0.8
Taking up crying child at night	2.6	2.0	0.7	0.6

N = 152

* p less than .05 (comparisons between mothers and between fathers)

mothers, although there is some paternal involvement in all the tasks mentioned. Fathers were most involved in the play activities of their children. Differences in the involvement of mothers in child care tasks existed for only two of eleven dimensions. Fathers differed only in that home care fathers took their children outdoors significantly more often. There was one common parental trend in the direction of home mothers and fathers being more likely to read to their children ($p = .08$ for mothers and $p = .12$ for fathers). The overall picture however is of a similar distribution of child care roles in the two groups.

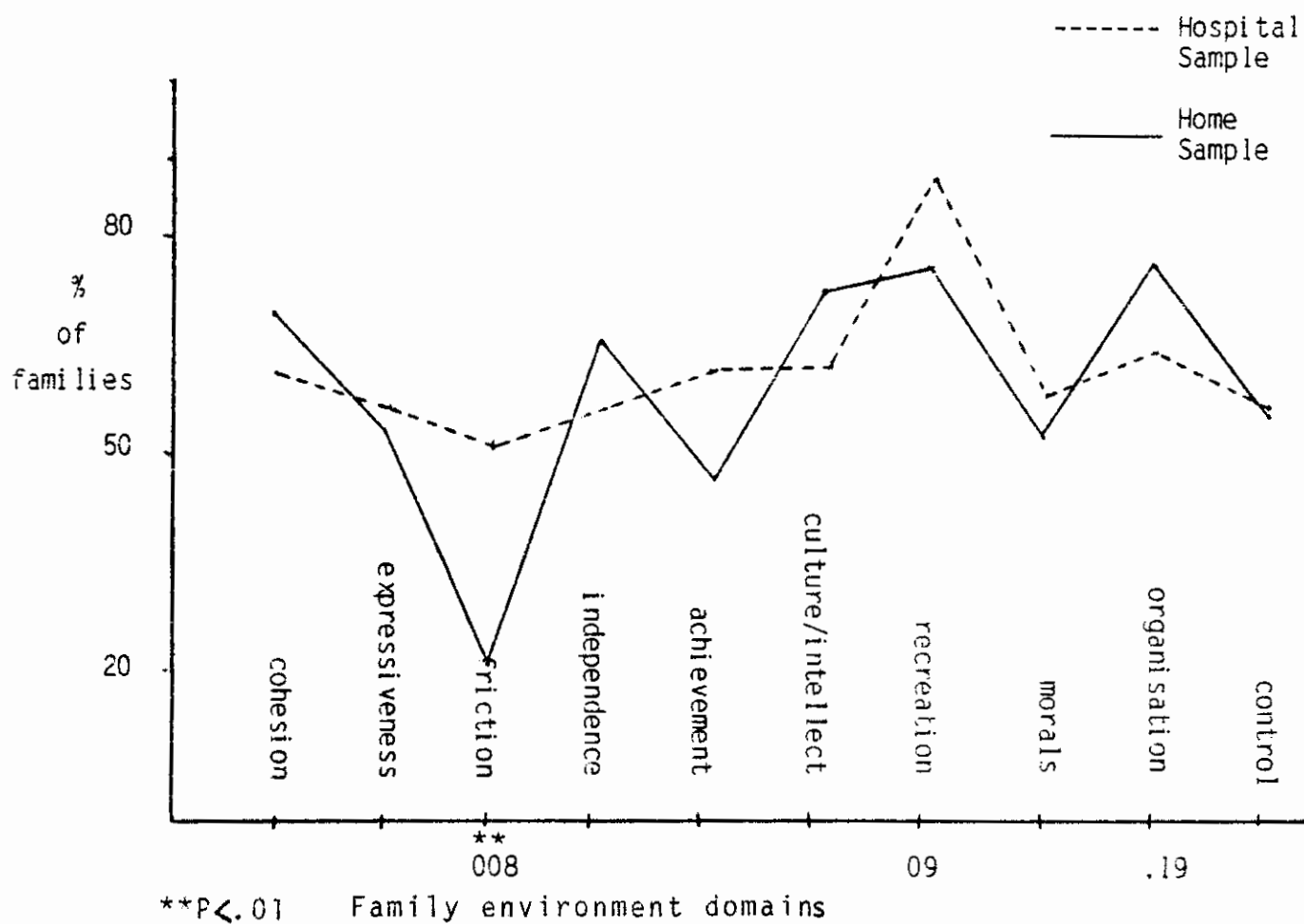
Combining the numbers of times children were taken outdoors, read to and played games with into an index of child socialization, home care children were significantly more socialized than were hospital care children (15.3 versus 12.7 episodes of such socialization in a week, ($p = .004$).

As a summary variable, the overall involvement in child care tasks of mothers was not different across groups; mothers were involved in 74% of child care activities on average. Neither were there differences in the overall level of involvement of fathers in child care tasks. They were involved in 20% of activities on average.

Family environment

From child socialization in the family, the focus now turns to the general family environment. This was assessed using a modified version of the Family Environment Scale. The family profiles of the two groups are presented in Figure 3.2. The only dimension to significantly differentiate the two groups is friction with considerably more hospital care families than home care families (51 vs. 20%, $p = .008$) experiencing friction-associated environments.

Figure 3.2 Profile of family environment domains from the Family Environment Scale (FES) for hospital and home care families.



Family Occupation/Income

Employment

The employment status of the study sample was questioned and is presented in Table 3.25.

Table 3.25 Employment profiles of hospital and home care

	Hospital care	Home care
Mothers: -Unemployed/Housewives (%)	85.0	69.0
-Length in present job (years)	4.0	4.4
Fathers: -Unemployed (%)	45.0	17.0**
-Length in present job (years)	5.1	7.2 *
-works long hours (%)	27.0	19.0
-if unemployed, unemployed more than 4 years (%)	11.0	3.0*

* p < .05 N = 152

** p < .01

Most mothers in both samples do not work outside the home. A significantly higher percentage of fathers of hospitalized children are unemployed. These fathers are also more prevalent in the long term unemployment category. Similar and high numbers of working fathers have to work long hours/overtime.

Income

In relation to income there were no group differences in family management of its income. Seventy per cent (70%) of hospital care and 67% of home care families reported at least some difficulties in management with 26 and 18% respectively having major financial problems.

Leisure/Social Contacts

Leisure

The leisure activities of the mothers interviewed are outlined in Table 3.26. Home care mothers are significantly more involved in leisure and community activities and have more shared leisure with their spouses/partners. They are also more likely to read newspapers regularly than hospital care mothers.

Table 3.26 Levels of involvement of mothers in various leisure activities

Activity	Hospital Care (%)	Home Care %
Get out often	53	71 *
- often accompanied by partner	55	90 *
member of club	11	22
- often accompanied by partner	2	5
attend religious services often	55	75 *
- often accompanied by partner	48	70 *
meet friends often	93	94
- often accompanied by partner	63	68
watch T.V. daily	84	81
read newspapers most days	39	67 **

* p < .05 N = 152

** p < .01

Social Contacts

Home care mothers have more casual contacts (P = .003) and meet more acquaintances daily (p = .008). Only numbers of relatives contacted were the same for the two groups. In fact 21% of hospital care and 8% of home care mothers reported having no good friends (p < .02).

Similar numbers of friends of both groups lived near enough to be able to visit easily (56 and 66%). Hospital care mothers were significantly less happy with their contacts with friends, 60% versus 3% wishing to see friends more often ($p < .001$). Besides satisfaction levels with good friends, satisfaction levels for home and hospital care mothers did not differ across groups.

When asked about the availability of any confiding relationship, 13% of hospital and 5% of home care mothers reported having no such relationships ($p = .06$). Fourteen per cent (14%) of hospital care mothers had only their partners to confide in, in contrast with 5% of home care mothers ($p = .04$).

The intimate relationships of mothers and the wider social networks and interactions of mothers have been outlined. Intermediate between these is the relationship of the study families with their own families of origin. This is now considered.

Family of origin

There were no differences in the numbers of mothers and fathers who had their parents living in the two study groups. Eighty four per cent (84%) of both mothers and fathers had their own mother alive while 69% of mothers and 62% of fathers had their own father alive. Family relationship pattern summaries in Table 3.27 reveal that hospital and home care groups differed in the poorer relationships of hospital mothers and fathers with their own mothers. No differences in their parents' marriages or in their paternal relationships were evident.

Table 3.27 Relationships of parents in this study with their own parents.

Relationships	Hospital Care %	Home Care %	
Mother - with her mother			
poor/none	9	8	} *
very close	58	75	
- with her father			
poor/none	16	18	}
very close	42	46	
- parents marriage			
poor/separation	14	8	}
very good	11	6	
Father - with his mother			
poor/none	11	7	} *
very close	49	63	
- with his father			
poor/none	11	10	}
very close	44	52	
- parents marriage			
poor/separation	11	10	}
very good	8	7	

* p < .05 N = 145

Summary variables indicate that home care mothers have significantly more leisure involvements (p = .001) and significantly more shared leisure involvements with spouses than do hospital care mothers (p = .003). Home care mothers also meet a wider range of social contacts (p = .001) although satisfaction with contacts is not different between groups. Hospital care families also had significantly

poorer personal resources from their own original families in terms of quality of their relationships with their families of origin ($p = .046$). In all then, relationships and involvements outside of the nuclear family are poorer for hospital care mothers on a variety of indicators.

3.4.e. Family Health Behaviour

Health Service Usage

Health service financial coverage differs significantly for the two groups ($p = .05$). Forty seven per cent (47%) of hospital care patients were Medical Card holders, 29% were Hospital Service Card holders and 22% were private patients. The corresponding figures for home care mothers were 32, 30 and 33%. In all 4% of study participants were involved in employment based health coverage schemes.

Table 3.28 outlines the health behaviours of, and the use of health services by the families in the recent past.

Table 3.28 Health related activities of hospital and home care families

Activity	Hospital Care	Home Care
<u>Families</u> : -using medication (this week) %	36.0	40.0
-use of health services (last year) N	6.2	5.1
-no. of preventative visits (last year) N	0.5	0.5
<u>Mothers</u> : (%)-had no postnatal checkup	65.0	84.0*
-using family planning	65.0	76.0
engaging in good health behaviours:-mothers	51.0	63.0
-fathers	41.0	68.0*
engaging in bad health behaviours:-mothers	55.0	42.0
-fathers	47.0	35.0
<u>Mothers</u> : -ratings of family health (1-4)	2.7	2.8
-satisfaction with family health (1-4)	2.8	3.1
-control over family health (0-3)	1.9	2.3 *

* $p < .05$ N = 152

Only for postnatal checkups were the preventative health behaviours of families generally or of mothers different, with considerably fewer hospital care mothers returning for such checkups. There were no significant differences in the numbers of mothers using different family planning methods. The contraceptive pill was the most popular contraceptive choice and was used by 39% of women. Twelve per cent (12%) of women used natural methods of family planning, 10% used condoms and two women had chosen the permanent option of sterilization. Husbands of hospital care women engaged in less positive action for health. Levels of, and satisfaction with health were similar for both groups. However home care mothers felt that they had significantly more control over their own family's health. Family views on this control dimension are further outlined in Table 3.29 which shows that most individuals - 75% of hospital care and over 80% of home care mothers - felt that family health is somewhat within their control.

Table 3.29 Perceived control by mothers over family health

Amount of control	Hospital Care %	Home Care %
a great deal	36	43
some	36	46
very little	12	5
none at all	15	6
N = 152		

Health Practices

Specific data relating to the actions undertaken by parents which were felt (by mothers) to be beneficial or damaging to health is outlined in Table 3.30 and 3.31.

Table 3.30 Behaviours undertaken by parents which were felt to be conducive to health

Healthy Behaviour	Mothers		Fathers	
	Hospital Care %	Home Care %	Hospital Care %	Home Care %
None	49	37	59	32
weekly exercise	37	47	44	61
eat well	20	29	9	24
get fresh air	4	8	3	7
take tonic	3	--	--	--
gardening	--	--	--	2

N = 152

Table 3.31 Behaviours undertaken by parents which were felt to be detrimental to health

Unhealthy behaviour	Mothers		Fathers	
	Hospital Care %	Home Care %	Hospital Care %	Home Care %
none	45	58	53	65
cigarettes	55	37	50	30 *
alcohol*	3	--	4	5
insufficient sleep	--	2	--	--
works too hard	--	2	--	3
eats too much	4	6	1	5
misc.	1	--	2	2

* $p < .05$ N = 152

* This estimate is of alcohol use felt to be detrimental to health; figures for the overall use of alcohol are 66, 83, 91 and 93% respectively. Cigarette values reflect actual usage.

Taking exercise was the most popular form of healthy behaviour undertaken while smoking was the most prevalent form of behaviour practised which was seen to be detrimental to health. Only a small number of respondents felt that their husband's level of alcohol use was detrimental to health (3% in all).

With regard to cigarette and alcohol consumption 7 and 8% of hospital and home care mothers respectively smoked more than twenty cigarettes daily with 14 and 7% of fathers doing the same. Proportions of women from both groups who smoke are the same as seen in Table 3.31 but fewer home care fathers smoke. When considering the taking of alcohol, there was a trend in the direction of more home care mothers drinking ($p = .076$). However, there is no difference in the amounts consumed weekly by those who drink. Women who do drink drink on average on 1.1 days a week while drinking men do so on 1.4 days a week on average. Women who drink consume an average of 1.4 drinks per drinking occasion (i.e. glasses of wine, half measures of spirits or pints of beer) and men consume 2.5 drinks on average per drinking occasion.

Help Seeking For Medical Problems

The propensity to seek help for a number of common medical problems was also queried. Table 3.32 outlines the pattern of such help seeking. Home care mothers are more likely than hospital care mothers to seek help for their "nerves", for unexplained weight loss and for blood in their stools.

When levels of attention-seeking are assessed for the three most serious adult medical problems listed (chest pains, unexpected weight loss and blood in stools) home care mothers would attend significantly more often for these problems than would hospital care mothers ($p = .025$). Levels of attention-seeking for the three least serious of these adult problems (temperature, cough/ sore throat and allergy) were similar for the groups.

Table 3.32: Propensity of mothers to seek medical help for a variety of personal and child health problems

Health Problems for which help would be sought.	Hospital Care Mothers%	Home Care Mothers%
<u>Symptoms of mother-</u>		
- A temperature of 103° for two days	22	22
- A repeated sharp pain in chest	59	66
- Severe cough and sore throat	34	32
- "Nerves"	56	72 *
- Frequent insomnia (sleeplessness)	48	49
- Unexplained weight loss	53	68 *
- Allergy	33	31
- Blood in stools	95	100 *
- General fatigue (always tired)	68	65
<u>Symptoms of child -</u>		
- feeling poorly for several days and temperature of 102°c	93	92
- unexplained muscular pains and aches	67	77
- sore throat for 3 days but no temperature	68	57
- ear ache	85	83

* p < .05 N = 152

The propensity to seek help for their children's symptoms was high and similar for both groups. Views on the necessity to attend for preventative checkups for mother and for child did not differentiate the two groups. On average 42% of mothers felt preventative checkups to be of some importance for themselves and 74% for their children.

General attitudes to doctors and to health care are outlined in Table 3.33.

Table 3.33 Mothers' attitudes to doctors and health care

<u>Attitudes</u>	<u>Hospital Care</u> %	<u>Home Care</u> %
- I have great faith in doctors	30	57**
- As long as you feel all right, there is no reason to go to a doctor	83	73*
- In general, I think doctors do a good job	89	95
- There is much a person can do to keep from becoming sick	75	83
- In general, I think most doctors are overrated	40	16**
- If a person works at it he can stay in good health	56	69
- When there are colds going around, I am sure to get one no matter how much I try to avoid it	37	25
- I would rather not go to a doctor unless I have to	96	84*
- Even if a person is not sick, he should see a doctor at least once a year for a routine checkup	37	40
- If you are going to be sick, you are going to get sick; no use worrying about it	53	61

N = 152

* p = < .05

** p = < .01

In all hospital care mothers are less enthusiastic about doctors and less likely to be interested in preventative visits to the doctor.

In relation to health, summary variables reveal no difference in health status of the two groups. Home care groups had significantly more positive attitudes to health care ($p = .003$) and there was a trend suggesting that they engaged in somewhat more healthy behaviours ($p = .084$).

Psychological health

There were no differences in four point ratings of levels of depression and anxiety in the hospital and home care parents. Some 39% of mothers and 10% of fathers were more than a little depressed in the previous three months. Main sources of depression for mothers were life generally (18%), the post-natal period (11%), money (5%), marriage (5%) and health (4%). Main sources of depression for fathers were life generally (34%) and money (7%).

Thirty six per cent (36%) of mothers and 28% of fathers were more than a little anxious in the previous three months. Here main sources of anxiety for mothers were money (33%) and life generally (20%) and for fathers money (30%) and life generally (22%).

Very little hypochondriasis was evident; 6% for mothers and 2% from reports for fathers.

Using the GHQ as a more sensitive instrument to measure general psychological wellbeing, hospitalized mothers were significantly more depressed by two of the three scoring combinations ($p = .027$ for the chronicity scoring system of Goodchild and Duncan-Jones (1985) and $p = .019$ for the standard 0-4 rating system). Meanwhile the 0-1 rating system showed a strong trend ($p = .06$) in the same direction. Using Goldberg's (1972) 'case' classification, those mothers scoring five and greater on the scale (0-1 ratings) were examined. Forty eight per cent (48%) of hospital care and 31% of home care mothers fell above psychiatric case cut off point ($x = 3.7$, $p = .055$); these mothers then would be seen as having psychological

symptoms meriting attention if they were seen in an assessment situation.

The GHQ score in itself is a summary variable of psychological distress, thus the summary outcome is of hospital care mothers being more psychologically distressed than their home care counterparts.

The last dimension to be considered is the number of life events that families have encountered in the recent past.

Stressful Life Events (SLEs)

As a summary variable in itself the impact of SLEs experienced by families is very similar for both groups of families at 50.0 and 49.3 for hospital and home care families respectively (score range 0-100). This impact resulted from an average of 3.3 events in the year for families in each group. Overall positive impacts were 3.7 and 3.1 for hospital and home care families with negative events having an impact of 3.7 and 4.0 for the groups respectively. Thus there was no overall difference between groups of families in their experience of life events in the recent past.

Having described in detail the child and family circumstances of the two groups in the study; children who were hospitalized for gastroenteritis and children who were managed at home, a number of the summary variables used in the description are now presented in Table 3.34. Child care dimensions do not appear to differentiate the two groups, neither do family factors such as marriage, life stress or health levels and actions (including levels of gastroenteritis symptomatology). Instead two personal or family dimensions, i.e. maternal distress and health attitudes, along with poorer circumstances in terms of extra-family factors such as the neighbourhood, leisure and social contacts differentiate the groups.

Although not readily summarizable in one score, evidence on the material circumstances of the families which has already been presented illustrates that hospital care families live in generally poor material circumstances.

Table 3.34 Comparisons of family summary variable values for hospital and home care samples

Summary Variables	Variable value	
	Hospital Sample	Home Sample
Influence of parents	6.25	6.73
Influence of children	6.56	6.49
Joint family influence	13.10	13.22
Parenting skills	7.04	6.82
Marriage: - satisfaction	14.87	15.55
- friction	6.26	5.48
- overall	28.47	29.84
% Child care: - mother	73.01	74.46
- father	19.49	21.82
Life events impact	49.96	49.31
Neighbourhood	52.74	55.57 *
Leisure	3.44	4.41 **
Shared leisure	2.56	3.22 **
Contacts: - types	5.5	7.07 **
- satisfaction	2.90	2.95
Family of origin	7.45	8.27 *
GHQ - 30 (Chronicity scoring)	9.95	7.49 *
Health: - status	9.26	8.72
- behaviour	2.57	3.23
- attitude	4.46	5.12 **
Medical severity rating	5.15	4.96

* p < .05 N = 152

** p < .01

Interviewer assessments of both family groups are presented in Table 3.35. Here the handling of gastroenteritis, parenting levels, family health orientation and family hygiene levels are poorer for the hospital care group.

Table 3.35 Interviewer assessments of family dimensions (1-5 point scales)

Dimension	Assessment Score	
	Hospital Care	Home Care
Handling of gastroenteritis	2.70	3.33**
Parenting level	3.10	3.43*
Family health orientation	2.78	3.28**
Family stress	2.58	2.84
Maternal confidence	3.54	3.52
Marriage	3.29	3.46
Depression	2.72	2.73
Anxiety	3.11	3.15
Hypochondriasis	1.05	1.12
Family hygiene	3.06	3.55**

N = 152

* p = .05

** p = .01

These then are the patterns which appear to distinguish hospital and home care families using variable by variable statistics. It is also possible to find the factors best discriminating the two groups using a single statistical calculation - discriminant analysis.

3.4.f. Summary of Findings for Hospital and Home Care Groups

Before summarising the findings, it might be useful to describe this summarising technique in a little more detail.

Discriminant Analysis

As a statistical device discriminant analysis not only selects the variables which best differentiate two or more groups from each other but also provides an estimate of the strength of the discrimination provided by the different variables involved.

Stepwise discriminant analysis was performed here in which variables differentiating the two groups are entered in a stepwise progression, the largest discriminative being entered first. The relevant statistic in these calculations is Wilk's Lambda. The larger the value of this statistic, the smaller the amount of discriminating power is present in the variables included in the analysis. Chi-square significance values are also provided for each variable. Significant values indicate that a statistically significant amount of discriminating information still exists which is not yet included in the analysis. A final statistic of interest in discriminant analysis is the canonical correlation. This variable operates similarly to multiple regression correlations in that the square of the value provides the proportion of variance of the discriminant function which is explained by the variable groupings included in the analysis.

Discriminant Analysis of Hospital and Home Care Groups

The discriminant analysis summary table for hospital versus home care cases is presented in Table 3.36.

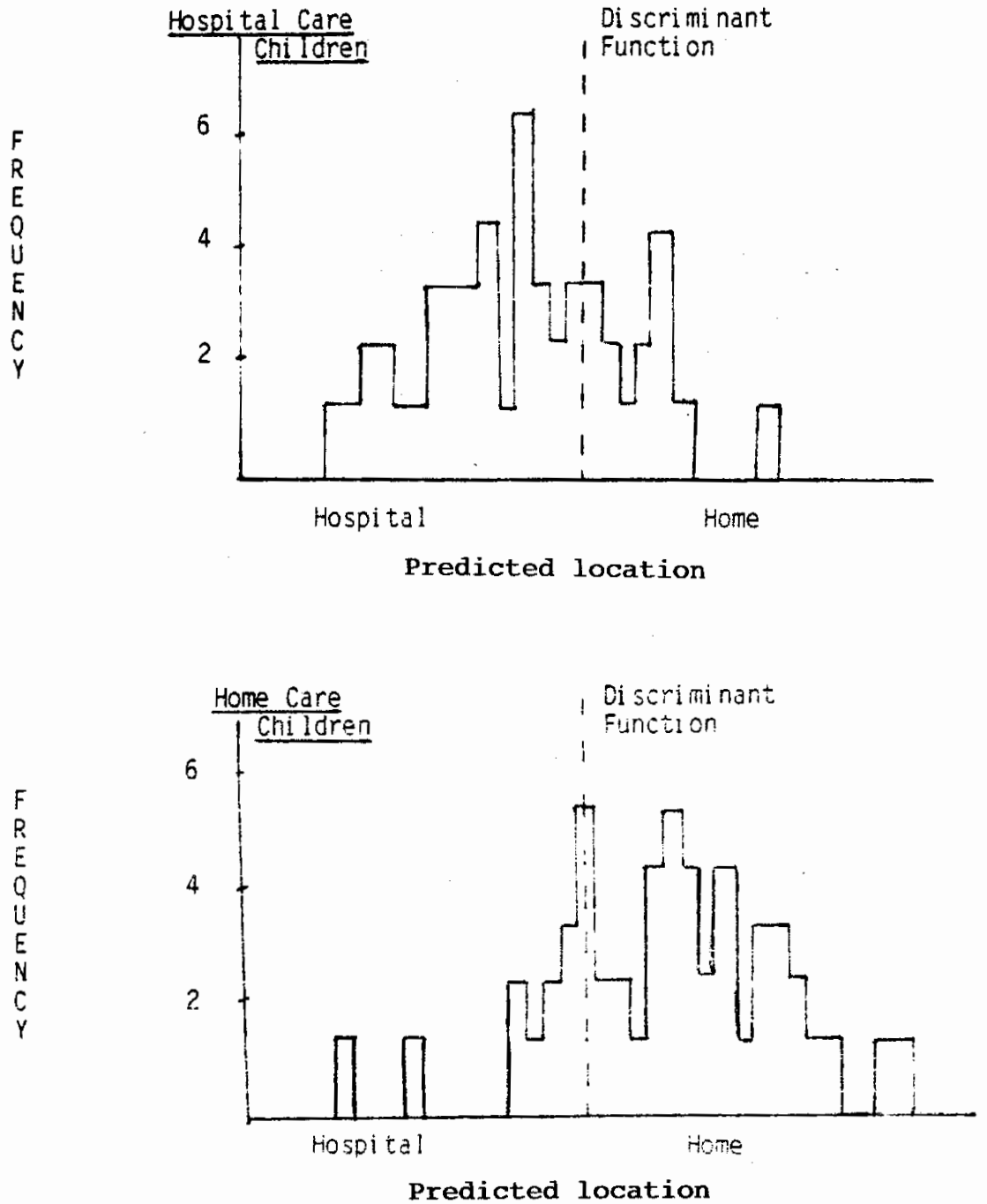
Table 3.36 Discriminant analysis of hospital and home care families by study summary variables (summary table)

STEP	Variable entered	Wilk's Lambda	Significance (χ^2)
1.	overall contacts	.79	.000
2.	handle gastroenteritis	.72	.000
3.	health attitudes	.68	.000
4.	overall marriage	.61	.000
5.	overall neighbourhood	.59	.000
6.	stress rating	.57	.000
7.	mother's confidence	.56	.000
8.	GHQ	.55	.000
9.	health status	.51	.000
10.	hypochondriasis	.50	.000

N = 152

The complete listing of summary variables from the study as outlined in Table 3.34 was entered into the analysis. Only those variables which contributed significantly to the discriminant function feature in this analysis summary table. A final Wilk's Lambda value of .50 and a chi-square value of .000 illustrate that discrimination between the two groups is far from complete. A canonical correlation of .70 suggests that 49% of the variance between the two groups is explained by the present discriminant function. A further set of information on the discriminant power of the analysis is the percentage of accurate classifications of the hospital and home care groups based on the discriminant function from this analysis. Seventy two per cent (72%) of hospital care and 71% of home care families were correctly identified by the discriminant analysis. The distribution of hospital and home care families about the

Figure 3.3 Frequency distribution histograms of hospital and home care children about a stepwise discriminant analysis function from study summary variables



N = 152

'best-fit' function which discriminates the two groups is outlined graphically in Figure 3.3. This again illustrates the relatively poor discriminability of the hospital and home care groups. Based on these variables more than one in four classifications of families into hospital or home care cases would be inaccurate.

What these statistics say then is that there is no clear cut distinction between the two groups, hospital and home care families. They do also illustrate however that the variable which best discriminates the home and hospital care group is the overall level of social contacts of each group.

Referring back to Table 3.34 home care mothers are seen to have significantly more of these contacts than do hospital care mothers. The second most powerful discriminating variable between the two groups is the interviewer rating of how gastroenteritis was handled by mothers. Here again home care mothers handled gastroenteritis more efficiently.

It was felt that since the general hospital and home care distinction did not clearly differentiate mothers into two family types, a more stringent distinction between the two groups in the study might provide a clearer pattern of differentiation between these groups. Thus attention was focused on the extremes of the hospital and home care families. These are the mildly sick children who were managed in hospital and the severe gastroenteritis cases which were managed at home.

Severe Home Cases and Mild Hospital Cases

An analysis of medical severity ratings reveals that twenty six cases of home management were rated as being serious and requiring hospitalization (ratings 6-7) while seventeen hospital cases were seen as very mild or mild requiring either GP or no attention (ratings 1-4). These then are the extreme groups of very sick children managed at home and children with mild problems who are hospitalized for gastroenteritis. Why is it that some very sick children are managed at home and some children with very mild symptoms are hospitalized for gastroenteritis?

The striking pattern of results across the list of summary variables is of no significant difference between groups for any dimension. Thus no differences exist for instance in levels of depression, marriage and social domains between those who have a mildly sick child hospitalized and those who care for a very sick child at home. The only suggestions of differences between the groups were of hospitalized children being better/easier to manage in the family ($p = .088$) and their families having fewer overall social contacts ($p = .185$) and higher levels of stressful life events ($p = .118$).

On interviewer assessments the handling of gastroenteritis was seen as significantly poorer in hospitalized families ($p = .001$) as would be expected for this group hospitalized for mild symptoms. However none of the other nine ratings were in any way suggestive of differences between the two groups.

As with the total sample the factors differentiating mild hospital and severe home care can be investigated using discriminant analysis

Discriminant analysis of mild hospital cases and severe home cases by study variables is presented in Table 3.37.

Table 3.37 Discriminant analysis of mild hospital and severe home care families by study summary variables (summary table)

Step	Variable entered	Wilk's Lambda	Significance (χ^2)
1.	overall contacts	.80	.019
2.	influence of child	.66	.007
3.	family environment	.53	.002
4.	total leisure	.47	.002
5.	child integration	.39	.001
6.	overall neighbourhood	.34	.000
7.	handling gastroenteritis	.28	.000
8.	parent rating	.25	.000
9.	satisfaction contacts	.20	.000
10.	overall parenting	.16	.000
11.	influence of parents	.14	.000
12.	family influence	.12	.000
13.	health behaviour	.11	.000
14.	% care by father	.09	.000
15.	mother's confidence	.08	.000
16.	parenting satisfaction	.05	.000
17.	life events impact	.04	.000
18.	overall marriage	.04	.000

N = 43

On this occasion the final Wilk's Lambda is .04 indicating that the two groups have been almost completely discriminated. A canonical correlation of .98 also reveals that 96% of the variance between groups has been explained by the variables included in the discriminant function. This final discriminant function would now classify 91% of mild hospital cases and 100% of severe home cases correctly or an overall 97% of cases correctly.

For practical purposes the use of eighteen summary variables to predict hospital or home care patient designation is completely unfeasible. However some general comments on the nature of the variables involved in the discrimination can be made. As with the discriminant analysis for the total sample of hospital and home care cases, the overall social contact variable appears as the primary discriminating variable in the present analysis. In fact the first six steps of the present analysis suggest two themes - one of social contact (overall contacts, total leisure activities and overall neighbourhood satisfaction) and the other of child-parent environment in the home (influence of child, family environment and child integration). The next variable in this discriminant analysis then is the rating of the mother's handling of gastroenteritis. Taking the two discriminant analysis tables there is evidence of the primary role of social contacts in deciding whether children are managed at home or in hospital for gastroenteritis. Social contacts have even more explanatory power than does an assessment of the handling of gastroenteritis by mothers in the illness situation. Because of this, the relationship of social contact variables with other study variables is of particular interest. Those relationships chosen to be of most interest here are presented in Table 3.38. These correlations will be discussed in more detail later. Just now it is sufficient to notice that social contact measures are significantly associated with a wide range of other study measures. This will be considered further in the discussion. For the moment the focus now turns to some general relationships between variables in the study. The first of these is the relationship of ratings of the handling of gastroenteritis with other variables.

The Handling of Gastroenteritis

As mentioned earlier the handling of gastroenteritis was rated by the interviewer on a 1-5 scale, higher values indicating better handling of the episode. Better handling of gastroenteritis was not correlated with the age of the child. It was however associated with older hospital care mothers ($r = .290$, $p = .006$), with more educated hospital care mothers ($r = .400$, $p = .001$) and

Table 3.38 Correlations of social contact variables with other study variables

	Leisure activities	Shared leisure	Overall contacts	Contacts satisfaction	Family of origin
handling of gastroenteritis	.209*	.119	.170 [●]	.025	.429**
general parenting	.454**	.486**	.237*	.353**	.674**
maternal confidence	.206 [●]	.021	.176 [●]	.222*	.208*
maternal hygiene	.412**	.375**	.409**	.245*	.616**
worry about gastroenteritis	-.098	.062	-.195 [●]	.046	-.314**
general anxiety	-.243*	-.236*	-.254*	-.318**	-.230*
psychological distress (GHQ)	-.267*	-.333**	-.282*	-.333**	-.453**
family stress	.437**	.451**	.282**	.366**	.718**
health status	-.174 [●]	-.372**	-.227*	-.328**	-.318**
health behaviour	.322**	.443**	.292**	.338**	.514**
health attitudes	.245*	.428**	.325**	.262*	.536**
breast fed baby	.240*	.265*	.194 [●]	.157 [●]	.294**
vaccinated baby	.249*	.342**	.132	.189 [●]	.280**
present hospitalization attitude	-.093	.005	-.081	-.064	-.147
views on child hospitalization generally	.034	.034	-.086	-.041	-.044
mother's education	.178 [●]	.253*	.354**	.253*	.394**
father's education	.251*	.394**	.222*	.155	.370**
mother's occupation	-.286**	-.274*	-.214*	-.184 [●]	-.294**
father's occupation	-.313**	-.403**	-.234**	-.122	-.284**

● $p < .10$ N = 152

* $p < .05$

** $p < .01$

fathers ($r = .358$, $p = .003$), and with hospital care mothers ($-.289$, $p = .006$) and fathers ($r = -.410$, $p < .001$) of higher occupational status. There was no relationship between mothers' level of worry about the gastroenteritis episode and its handling or between general beliefs on the severity of gastroenteritis and its handling. Neither was there any relationship between general assessments of maternal anxiety and these variables. Thus there was no evidence of anxiety (either state, i.e. related to the gastroenteritis episode, or trait, i.e. generalized anxiety) interfering with or relating with the handling of gastroenteritis in this study.

Returning to the relationship of demographic variables to the handling of gastroenteritis, a number of partial correlations were performed to elicit the variables underpinning better gastroenteritis management by mothers. The occupational status of mothers and fathers is no longer significantly related to gastroenteritis handling when age and educational status of parents are controlled. Furthermore in handling gastroenteritis, age appears to be the most important of the two variables, age and education. Controlling for her education and occupation, a mother's age is still significantly correlated with gastroenteritis handling ($r = .187$, $p = .023$), older mothers handling the situation better.

Worry about gastroenteritis episode

Mothers rated themselves on a 0-3 scale in terms of how much anxiety the present episode of gastroenteritis caused them, higher scores representing more worry. As mentioned earlier worry did not relate to the handling of gastroenteritis. It was however associated with beliefs about the general severity of gastroenteritis as an illness, those more worried believing gastroenteritis be to more serious ($p = .05$). More worried mothers also showed a trend indicating that they had had worse experiences with gastroenteritis ($p = .06$) although it did not matter whether these experiences were remembered from within their own family or from the experiences of non-family contacts.

More worry was not associated with the child's age for hospital care mothers but was associated with younger children in the home care sample ($r = -.376$, $p = .001$). More worry was however associated with lower occupational status of hospital care mothers ($r = .187$, $p = .05$) and fathers ($r = .306$, $p = .005$). When other demographic variables and the severity of the particular gastroenteritis were controlled for, partial correlations revealed that the influence of the child's age or the parents' occupational status was no longer significantly related to the worry caused by the episode.

Mothers' Estimates of the General Severity of Gastroenteritis

Mothers rated gastroenteritis on a four point severity scale, higher values associated with more severe ratings. As already mentioned severity estimates are significantly associated with levels of worry about gastroenteritis. There is also no trace of a relationship between mothers severity ratings of gastroenteritis and their previous poor experiences of the disorder in their own family or elsewhere. The younger age of the home care child is associated with more severe gastroenteritis ratings ($r = -.376$, $p = .001$) with a trend in the same direction for hospital care cases ($r = -.182$, $p = .06$). Poorer occupational status of hospital care fathers is also associated with more severe estimates of gastroenteritis ($r = .306$, $p = .005$). The young age of the child is still associated with severity ratings after other demographic variables have been controlled for ($r = -.263$, $p = .038$) but fathers occupational status does not influence severity ratings when other demographic variables are controlled for.

A number of issues of general interest which have emerged in the study with regard to early parenting are now briefly outlined before returning to the specific focus of this report. The first of these concerns the previous experience of study mothers with babies and baby care information.

Parenting Experience and Preparation

Experience with babies

Women with more previous experience of young children were more likely to be younger ($r = -.277, p = .009$), to be less educated ($r = -.253, p = .026$) and to have husbands of lower occupational status ($r = .211, p = .048$). Those with more previous experience were also significantly less likely to breast feed their own child ($r = -.287, p = .011$) although there were no differences in vaccination levels.

Preparation for parenting

The differences in hospital and home care groups on the uptake of various aspects of preparation for parenthood have already been outlined. Such preparation is now considered with reference to the maternity hospital attended by mother for prenatal checkups and for the birth of their babies.

Table 3.39 Uptake of various aspects of child care by maternity hospital attended.

Child Care Aspect	Maternity Hospital Attended				
	1	2	3	4	
- attended prenatal classes	48	44	50	71	*
- given "Book of the Child"	84	70	82	92	**
- given "Food & Babies"	71	57	60	86	**
- breast fed baby	32	35	17	43	*

* $p < .05$ N = 152

** $p < .01$

There are significant differences across hospitals in the uptake of all four aspects of child care. For instance more mothers attending Hospital 4 partake in each of the four aspects outlined. This finding requires further investigation to ascertain if such hospital differences reflect aspects of hospitals or of their patients or a combination of these factors. For the moment attention returns to early child care.

Breast feeding is again considered, this time alongside levels of vaccination and in relation to a number of demographic variables in Table 3.40. Here it is evident that breast feeding is associated with higher parental education and occupation. Correlations between breast feeding and maternal age are nonsignificant ($r = .063$, $p = .229$). However the categorical representation of age by breast feeding in this table indicates that there is a significant relationship between the two with evidence for a curvilinear relationship, younger and older mothers being less likely to breast feed their babies. Higher levels of breast feeding are also associated with higher levels of immunization ($p = .189$, $r = .054$). Demographic variables are also significantly associated with levels of vaccination as seen in Table 3.40.

Table 3.40 The relationships of breast feeding and vaccination uptake with family demographic variables

	breast fed baby (%)	no vaccinations (%)	all vaccinations (%)
<u>Education</u>	**		
Mother: basic	15	7	4
Inter cert	25	12	9
Leaving cert	58	7	9
Father: basic	20 **	11	4 *
Inter cert	29	8	8
Leaving cert	57	6	14
<u>Occupational status:</u>	**	**	*
Mother: high (1/2)	45	0	18
middle (3/5)	38	9	8
low (6/7)	12	16	0
Father: high	64 **	4 **	18 **
middle	30	11	5
low	4	19	4
<u>Age</u>	**		*
Mother: < 24	20	13	2
25 - 29	37	8	8
30 - 34	45	7	14
35 +	25	8	18

* p < .05 N = 152
 ** p < .01

An extensive number of interesting associations have emerged between various factors in this study. However for present purposes the main findings in relation to hospital and home care families have been outlined. A discussion of these results follows.

3.5 DISCUSSION

The family circumstances of children who were either hospitalized or managed by home care for gastroenteritis have been examined in great detail in this study. The approach was to examine a wide range of domains of family life at an intermediate level of complexity. Summary variables, where such summarization was possible, also provided a means of condensing the large amount of available information.

Perhaps the most important finding of the study is the fact that medical ratings of the severity of the children's gastroenteritis symptoms revealed no differences between hospital and home care groups. This finding proves the importance of non-medical factors in decision making on gastroenteritis - it is on these rather than on medical factors that hospital or home care management decisions are made. Against this background non-medical similarities and differences between hospital and home care groups are meaningfully queried. These similarities and differences are briefly summarized now.

The parents in hospital care families were younger, less educated and of lower occupational status than parents in home care situations. They also had larger families than the hospital care group although there were no differences in child age spacings between the study children and the next children in the family.

Material family circumstances such as housing type and amenities were also poorer overall for hospital care families as were neighbourhood features. Hospital care families were also those with both higher levels, and longer periods of unemployment. Yet the two groups did not differ in their estimates of their income management levels.

The overall marital relationship of both groups was also similar with the exception of increased irritability and sexual dissatisfaction for hospital care mothers. Home environment was also similar for nine of ten dimensions assessed, increased friction in hospital care families being the only dimension showing a difference.

In terms of general family leisure activities and social contacts hospital care families were relatively insular. More worrying is the fact that more hospital care mothers reported having no good friends (29 vs. 11%) or confidantes (13 vs. 5%). With regard to parenting supporters and advisors more of these women have poor relationships with their mothers and mothers-in-law. This finding is paralleled by the higher use of medical sources for parenting advice by hospital care mothers.

Returning to the family, pregnancy and birth experiences of both groups of children were the same. However hospital care children were less often breast fed and vaccinated. No overall differences in child temperament or child handling skills were found between groups. Hospital care mothers were however significantly more likely to be without day or evening babysitters for their children, a factor presumably resulting in greater restrictions on these mothers. On a similar note the children who were hospitalized were also less socialized than were home care children. Experience with children and with child-related advice were inversely related. Hospital care mothers had a lot of previous experience with children but little child care reading or prenatal class experience. The opposite was true of home care mothers. The "Book of the Child", given out routinely during pregnancy, was however received by the same numbers of hospital and home care families but more home care families had received "Food and Babies".

In terms of health the higher numbers of General Medical Service patients in the hospital care families again reflects their relative material disadvantage. There were no differences in the health status of these families. Present health service usage differed for preventative actions only, home care families availing of these services more often. Husbands of home care families also indulged in more positive actions for health than their counterparts but the two groups of mothers did not differ in this respect. In terms of attitudes home care mothers were more likely to report that they would seek help for serious adult medical complaints. They were also more positive about doctors and felt that they themselves had more control over their family's health. Anxiety and depression levels queried separately did not differentiate hospital and home care groups. However the GHQ as a generalized measure of psychological distress significantly differentiated the groups; 48% of hospital care mothers and 31% of home care mothers being scored as 'cases' by standard psychiatric criteria. Finally overall levels of stressful events in the two groups of families over the previous year were similar.

These findings are now considered in the light of the gastroenteritis episode.

Considering gastroenteritis symptoms in detail, hospital care mothers do not tolerate diarrhoea (and lower levels of diarrhoea) or irritability for as long as home care mothers do while they tolerate increased temperatures for longer. Hospital care mothers attended for medical help in the infectious disease hospital, had more home visits from GPs and more medical attendance after 9.00 p.m. Hospital care mothers also viewed gastroenteritis as being a more serious disease generally and were more worried about the episode. There were however no group differences in mothers' knowledge of how to treat gastroenteritis, in their previous experience of gastroenteritis to resolve in their children. It appears that hospital care mothers were less willing to tolerate their child's obvious symptoms (i.e. diarrhoea and irritability) and sought medical help in more of an emergency fashion, i.e. by home and by late night medical attendance.

A number of gastroenteritis management factors such as the more rapid and more serious nature of initial medical service contacts and the relatively unfounded fear of gastroenteritis of hospital care mothers would appear to relate fundamentally to the isolated situations of these mothers. This appears to be the most plausible explanation since these mothers have had more personal experience of children and child care (in previous family and babysitting experience and in having more and presumably generally older children in their own families). They also were more likely to be housewives thus not having the worry of leaving a sick child to caretakers during working hours. Their earlier approach to medical services must also be remembered in the light of their less positive attitudes about doctors. This earlier approach then may not reflect the favoured choice for hospital care mothers but the only option for them. More of them have poor relationships with their own mothers and mother-in-laws and with their neighbours and they more often have no friends or confidantes. Since similar numbers of both sets of mothers in this study knew to manage gastroenteritis by oral rehydration; the influence of social contacts in this context may be as much if not more to reassure and support mothers than to provide information. Mothers without such sources of confirmation and encouragement in their actions may turn to doctors for such assistance. The importance of the role of social contacts in the choice of hospital or home care management of gastroenteritis is also borne out by two discriminant analyses where some aspects of social contacts provide the most discriminatory variable between hospital and home care cases and also between mild hospital and severe home care cases.

Focusing on social contacts, levels of handling gastroenteritis are significantly correlated with social contact dimensions; with levels of leisure and with family of origin relationships as seen in Table 3.38. Ratings of parenting levels generally are also strongly associated with social contacts as are levels of maternal confidence and hygiene. Mothers with poorer family of origin relationships

are significantly more worried about gastroenteritis. Anxiety, distress and family stresses generally are related to each of the five social contact variables related to health dimensions like health status, health behaviour (including breast feeding and vaccination) and health attitudes. Lower levels of these domains are associated with lower levels of social contact. There is however a striking lack of relationship of social contact variables with mothers' views on the effects of hospitalization on young children or with their views of the hospitalization of their own children for gastroenteritis. Finally social contacts are significantly related to demographic variables, those of lower educational and occupational status having poorer social contacts. Overall lower levels of social involvement are associated with a large number of poorer health, child management and family circumstance indicators. Social contacts are also the most powerful set of variables differentiating hospital and home care mothers by discriminant analysis in this study as just outlined. This finding of the importance of social contact is one paralleled in many studies of social support in very different research contexts.

Firstly the association of social contacts and demographic variable, i.e. lower level of contacts and poorer socio-economic status found in this study has also been extensively discussed in Hannah Gavron's (1966) research on "Captive Wives". She pointed to the myth of working class cohesiveness, social embeddedness and solidarity in relation to the young mothers she studied. It was instead, she suggested, upper class women who enjoyed a wide circle of supportive friends. The old long established working class cohesive neighbourhood was now the exception with instead much new housing development and relocation of families. Many of the mothers in the present study also live in these new environments where opportunities for local social interaction have not yet been developed and where there is little sense of neighbourhood identity.

Lack of social contacts and social support have been associated with child abuse (Salzinger, Kaplan and Artemyeff, 1983), with the provision of less stimulating home environments to children by their mothers (Pascoe and Earp, 1984) and with higher levels of post-natal depression for mothers (Cutrona, 1984). Low levels of social support have also been associated with psychological distress (Dean and Lin, 1977) and with psychosomatic complaints (Theorell, 1976) to mention but a few study findings. More detailed discussion of the impact of social resources is available in Gottlieb (1981 and 1983). As mentioned earlier levels of social involvement were not associated with mothers' attitudes to the hospitalization of their child or to the impact of hospitalization on young children generally. This issue is now considered further.

Hospital care mothers were more in favour of hospitalization for their children for this episode of gastroenteritis while there were no differences generally in hospital and home care mothers in their views on the influence of hospitalization on young children. Since hospital care mothers were no different in their appreciation of the influence of hospitalization on their children, their positive attitude to the present hospitalization seems to be best explained by what Festinger (1957) called cognitive dissonance. Cognitive dissonance is a process whereby individuals assimilate two conflicting and thus potentially disturbing pieces of information. Here it was the impression of the researcher that hospital care mothers, who were as aware as home care mothers of the harmful effects of hospitalization on young children, accepted their child's hospitalization by convincing themselves of its necessity on this occasion. This is borne out by the fact that there is no relationship between those who were happy to have their child in hospital for gastroenteritis and those who saw hospitalization generally as having little or no influence on young children ($r = .014$, $p = .455$). Also those who are most worried about this episode of gastroenteritis are also those who feel that the hospitalization of young children is harmful ($r = .336$, $p =$

.002). In the present context this conviction of mothers of the necessity of hospitalization may have been achieved partly by the transfer of responsibility for their child's health to the GP and thus on their part the feeling of their own responsibility then to follow the doctor's advice. Those more in favour of hospitalization for this episode of gastroenteritis were not likely to be those who were more worried about it or who felt it was more severe.

Those favouring hospitalization for the present episode differed mainly in that they had less help from others in child care ($r = -.272$, $p = .01$), were more distressed by GHQ measures ($r = .203$, $p = .053$), had more family stresses ($r = .191$, $p = .05$) and were less educated ($r = -.212$, $p = .038$ for mothers and $r = -.288$, $p = .014$ for fathers).

Controlling for psychological distress, family stress and child care help, relationships between hospitalization attitudes and family education no longer reach significance. Thus it appears that positive attitudes to the hospitalization of one's children arise from current circumstances rather than from broadly held beliefs related to such pervasive factors as education. General attitudes to the hospitalization of young children are now considered.

Feeling that hospitalization had little or no effects on young children was mainly associated with more help from others in child care ($r = -.248$, $p = .023$), less general anxiety ($r = .216$, $p = .036$) and with tendencies for mothers and fathers to be less educated ($r = -.166$, $p = .093$ and $r = -.186$, $p = .092$ respectively). Again here controlling for help with child care and anxiety, relationships between education and hospitalization views diminish to non-significant levels ($p > .20$). The other two variables associated with general views on hospitalization do not fit in with any immediately plausible explanation for the genesis of such attitudes. Thus the beliefs held by mothers on the effects of hospitalization on young children appear not to be explicable in terms of the issues studied in the present research.

Returning to these beliefs it was interesting to note that the views of this whole group of Irish mothers on the influence of hospitalization on young children mirrored those of a larger Welsh sample studied by Earthrowl and Stacey (1977). The experience of the researcher in this present Irish study was also of two groups of mothers who were equally concerned about their children; there was not an impression of mothers wishing to hand their children over to the care of others during gastroenteritis difficulties. In this respect hospital visiting is now considered.

Many mothers encountered difficulties in visiting their children in hospital although most children were/would be visited daily. The sacrifices of many hospital care mothers to do this in the present sample were considerable. Mothers often had other household tasks and child care responsibilities which required long hours of work. For example one mother in the study had to take her five and seven year old sons from school to the hospital in order to visit and stay with her baby for the afternoon. This was because her husband was an alcoholic and not trustworthy with the children and because she had no friends/neighbours to whom she could turn for child care assistance. These boys, because of the hospital's isolation rules, were not of course allowed into the ward and spent afternoons (in winter) outside the sick child's window waiting for their mother. A number of mothers also stayed most of the day in hospital, returning home at night to complete their day's household tasks. Many mothers also encountered serious difficulties in, or because of, getting to the hospital. One young mother, for instance, could not afford to avail of hospital canteen facilities because of her expenditure of four bus fares daily. Because the hospitalized children are necessarily isolated in the hospital, most being in separate rooms, the visiting day for mothers in this particular hospital is a lonely one. Many mothers in this study found it difficult even to leave their rooms briefly because their children became upset. Thus the camaraderie and support usually available to mothers in children's hospitals was not

readily achievable in the present situation. Hospital care mothers were significantly less likely to have cars. There was a trend indicating that they found transport to hospital harder to finance and they had more other children in their families than did home care mothers. In this sense those most likely to be hospitalized were those least able to afford it either in financial or in child care responsibility terms. Alongside this it is also accepted that doctors sometimes hospitalize young children to give their mothers a rest or a break from a stressful routine. The findings of the present study in relation to the impact of hospitalization on families suggest that hospitalization is more difficult for those who already have difficulties or relatively scarce time, finances or child help resources. It is thus ironic that those most likely to have their children hospitalized for gastroenteritis are those who, along a number of family dimensions, can least 'afford' this option.

Having discussed at length the differences between hospital and home care families in this study, it is important now to draw attention to similarities between the two sets of families. This is done for two reasons. Firstly discriminant analysis was unable to clearly differentiate hospital and home care families on the basis of a very wide range of information on families, leading one to the conclusion that family variables may not be the major factors which differentiate home and hospital care families. Secondly, the day-to-day experience of the researcher was of meeting a substantial number of 'misplaced' mothers/children by customary expectations: i.e. many mothers in poor personal and family circumstances who did manage a sick child at home and many mothers in good personal and family circumstances who had a child hospitalized for gastroenteritis. It is difficult to quantify such impressions. However a perusal of the summary table of hospital and home care family indices (Table 3.34) and many other tables reveal the many areas of similarity of the two groups. Some indicators of the 'poor' circumstances of some home care mothers and of the 'good' circumstances of hospital care children are now outlined.

In demographic terms 26% of hospital care mothers and 57% of fathers had education to Leaving Certificate or beyond while 28% of home care mothers and 39% of fathers had basic education. Eight per cent (8%) of hospital care mothers and 13% of fathers had professional occupations while 6 and 18% of home care mothers and fathers were unskilled manual workers or had never worked. Thus demographically about as many families in 'good' circumstances had children hospitalized as families in 'poor' circumstances managed children by home care.

Fifty four per cent (54%) of hospital care mothers had a lot of experience with babies before having their own while 62% of home care mothers had very little or no previous experience of babies. In terms of child care assistance 40% of hospital care mothers and 34% of home care mothers had help from fathers with fewer than one tenth of their weekly child care tasks. Almost half of the hospital care families (47%) had fathers working while 27% of home care families had unemployed fathers. Thirty per cent (30%) of hospital care families managed well enough or better on their incomes while 35% of home care families had some or major problems with finances.

Preventitive child health care attendances were seen as very important by 29% of hospital care mothers and as not important by 22% of home care mothers. In general ratings of parenting ability 14% of hospital care families were seen as very good and 22% of home care families as poor. The overall health ratings (by mothers) of families was very good for 18% of hospital care families and poor for 15% of home care families. Sixteen per cent (16%) of hospital care families had very little family stress while 11% of home care families were experiencing considerable family stress. In all, these

aspects illustrate similar levels of 'mis-match' of families into hospital and home care groups. In other words the numbers of families with family features expected to be associated with and assist gastroenteritis management at home but who have their child hospitalized are equivalent to the numbers of families with family characteristics expected to tilt the balance in favour of hospital management of gastroenteritis yet who manage at home.

Finally, and more focused on gastroenteritis aspects, 14% of hospital care mothers were rated as being very hygienic and 22% of home care mothers as having poor hygiene standards. Seven per cent (7%) of hospital care mothers were rated as handling gastroenteritis very well and 6% of home care mothers as managing very poorly. Sixty eight per cent (68%) of children admitted to hospital were not lethargic while 30% of those managed at home showed some signs of lethargy. Forty four per cent (44%) of home care mothers managed gastroenteritis at home despite being very worried about it while 13% of mothers with children in hospital were not at all or only slightly worried about the gastroenteritis episode. Eighteen per cent (18%) of hospital care mothers felt that gastroenteritis was not generally a severe disorder. Of those hospitalized 55% were unhappy having their child in hospital and 86% felt hospital had some harmful effects on children. Alternatively 20% of home care families would not have been unhappy to have their child hospitalized on this occasion with 10% feeling that hospitalization has little or no effect on young children. Here again considering aspects more directly relevant to the gastroenteritis situation, there appears to be considerable overlap between those families managing at home and in hospital.

These findings overall illustrate that family factors in themselves do not neatly determine how childhood gastroenteritis will be managed. Coupling this with the study finding that medical symptoms of gastroenteritis in themselves do not determine the location of gastroenteritis management leads to the conclusion that other factors influence gastroenteritis management decisions. In this situation the other factors can only relate to aspects of the management styles of doctors. This dimension was not studied in this particular section of the study but will be considered in more detail in Section 4. At this stage a number of general comments on aspects of the mothers' study will be presented.

While marital status of hospital and home care mothers was similar in the present study, a comparison of the study marital status profile with area population patterns revealed that single mothers have higher than proportional rates of medical service usage (both for GP and hospital care use). Single mothers were not however significantly over represented in hospital in comparison with home care samples in the present study. This suggests that doctors, although seeing higher than community proportions of single mothers do not treat these mothers differently in terms of gastroenteritis management recommendations. This evidence bears out the many statements by doctors in their study to the effect that they looked at the support available to mothers rather than their marital status. It also indirectly reinforces the importance of social supports rather than structural aspects such as marital status in the choice of management location of childhood gastroenteritis.

Another aspect of note in the present study is the high level of psychological distress documented; 48% of hospital care and 31% of home care mothers ranked as displaying psychological distress sufficient to warrant a classification of significant psychiatric symptomatology if seen by an experienced clinician. As mentioned earlier Cleary (1986) in Ireland documented an 18% 'case' rating for urban women

using a clinical interview procedure. More directly comparable in this instance is some work which has just been completed and briefly described by Dr. Anthony Clare. He has studied the prevalence and severity of psychological distress of GP attenders at a London health clinic over the course of a year.

With very high cooperation rates and using the GHQ as his screening measure the overall prevalence of significant psychological distress in the sample was 35% (see Clare, 1987). Comparing this value with present study values there are significant differences ($p = .02$) suggesting that hospital care mothers are significantly more distressed than this overall GP sample. They are, as mentioned earlier, also more distressed than the present study's home care sample. Thirty one per cent (31%) of the home care sample noted as distressed, is similar to the 35% reported for the GP population mentioned above. Thus while levels of psychological distress appear high, for home care mothers they are not above those of GP attenders generally; in both cases about one in three are significantly distressed. However the level of almost one in two, (48%) of hospital care mothers being significantly distressed is decidedly above GP attenders' levels and gives cause for concern.

Psychological distress in this study was associated with lesser initial enthusiasm by parents for their child, poorer child handling, poorer marriages, less help from fathers with child care, poorer neighbourhoods, poorer social contacts by various measures, poorer handling of gastroenteritis and of parenting, poorer health orientation, more family stress, less maternal confidence and poorer hygiene. Health status behaviours including breast feeding and vaccinations and attitudes were also poorer for those with higher levels of psychological distress. Parental age was not associated with distress but those of lower educational and occupational status were more distressed. In all then psychological distress was associated with many of the other family aspects measured.

A final aspect to be considered is parental health behaviours. Levels of regular exercise taken by study mothers and fathers and the numbers of current cigarette smokers and alcohol drinkers are available from Tables 3.31 and 3.32. To have some idea of their relationship with other Irish groups these figures can be compared with current levels of those practices from County Kilkenny. These community-based levels have been collected in connection with a coronary heart disease prevention programme (see Kilkenny Health Project, 1986). Values for the 35-44 year age group are taken as those most clearly matching the ages of the present study sample. For men and women, hospital and home care groups only two significant differences emerged in comparisons of exercise, smoking and drinking levels. Significantly more hospital care mothers smoked than the community group (and than home care mothers as found earlier) and significantly more home care fathers took exercise than did their community group counterparts (and than hospital care fathers as found earlier). Four differences overall then out of eighteen such possibilities supported the better family health behaviours of home care families. Overall however the dearth of significant differences reflects the general similarity of all three groups in such health practices.

Having considered the major points of note from the mothers' study, information from this and the doctors' study will now be combined in a final section considering the implications of results from both studies. Before this the findings from the mothers' study are briefly summarized in a section on conclusions.

3.6 SUMMARY

- (i) Considerable overlap existed between family characteristics of hospital and home care groups, as revealed by discriminant analysis and single variable comparisons. By doctors' ratings, there were no differences in the severity of the gastroenteritis symptomatology of hospitalized children and those who were managed at home. Hence, much of the hospital/home care distinctions in this study were not made by family or medical severity criteria.

- (ii) Of those variables which did differentiate hospital and home care groups social contact variables appeared to have the major role. Those with fewer social and leisure contacts and poorer family of origin relationships were more likely to have a child hospitalized for gastroenteritis.

- (iii) Both groups of mothers were well, and equally well, aware of the negative influence of hospitalization on young children generally. Evidence suggested that the more positive attitudes of hospital care mothers to the current hospitalization of their child reflected in part current family circumstances and in part a cognitive strategy aimed at alleviating their concern over the negative effects of hospitalization on children. Similar numbers of mothers did/would visit and stay with their child for most of the day during hospitalization.

- (iv) In seeking help for gastroenteritis hospital care mothers acted more rapidly and used less routine medical services (i.e. home, and late night, visits) than home care counterparts. Similar numbers of mothers in both groups knew that oral rehydration was the treatment for gastroenteritis.
 - (v) General attitudes to pregnancy and birth experiences of both families were similar. After birth, however, breast feeding and immunization levels were significantly higher for home care families.
 - (vi) Previous child care experience was significantly higher for hospital care mothers while prenatal class attendance and reading child care information were higher for home care groups.
 - (vii) Child temperament, child management, attitudes to child care and help from fathers with child care tasks were the same for hospital and home care groups.
 - (viii) The marital status of both groups was similar but the hospital care group was younger, less well educated, of lower occupational status, more likely to be unemployed and unemployed for longer periods and to have larger families.
 - (ix) General material circumstances and neighbourhood facilities/services of hospital care families were poorer than for home care families.
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- (x) General marital and family environment measures were similar for both groups of families with the exception that levels of friction/irritability were higher in hospital care families.
- (xi) Health behaviour and attitudes but not health status differentiated hospital and home care families. Home care families had a higher level of healthy behaviour and more positive attitudes to health.
- (xii) On measures of psychological health, hospital care mothers were significantly more distressed generally than their home care counterparts or a GP population sample.
- (xiii) Interviewer ratings found gastroenteritis handling, general parenting, family health orientation and family hygiene levels to be poorer for the hospital care group. Meanwhile no differences existed between groups on ratings on family stress, maternal confidence, marriage, depression, anxiety and hypochondriasis.

General comments on the study are now presented in Section 4.

SECTION 4

GENERAL DISCUSSION

SECTION 4

GENERAL DISCUSSION

4.1. INTRODUCTION

The final section of this project attempts to combine some of the main findings of both the doctors' and the mothers' studies and from these to suggest directions for change which would best tackle the problem of gastroenteritis management. A number of related issues are also drawn into the discussion. The section first focuses on themes to emerge from the research studies of both doctors and mothers.

When doctors' and mothers' studies are considered in tandem, two important factors emerge. One concerns the differentiation of children into home and hospital care groupings and the other concerns the role of anxiety in gastroenteritis management. Each of these is now considered.

4.2. DIFFERENTIATION OF CHILDREN INTO HOSPITAL AND HOME CARE GROUPS

From the doctors' study multiple regression revealed that GP variations in hospitalization rates which were shown were explained almost entirely by GP and not by patient/family characteristics. For **Casualty** doctors, despite their homogeneity in age, training, etc (and thus statistically a lowered possible contribution of doctor variables), doctor variables still contributed over one third of the explained variance in hospital referral rates. The discriminant analysis in the mothers' study revealed that no clear differentiation of the two groups, home and hospital care families, was possible with the variables used. The best possible discriminant function would still misclassify over one in four families. In combination these point to the pivotal role of the doctor in management decisions on gastroenteritis. Regardless of the family circumstances some doctors will manage almost all gastroenteritis at home while some will admit many cases. Thus while differences between families were sought and initially examined in this study the overall pattern is of the general similarity of the two sets of families. Mothers were very concerned in general to comply with the doctors' instructions. Thus for instance many mothers not generally in favour of hospitalization felt that if the doctor suggested it in this instance then it must be the best treatment for the child. The seriousness with which doctors' advice was generally taken is particularly evident where parents did not agree with doctors' decisions to hospitalize. The doctor's advice was almost always complied with because parents felt they could not take responsibility for the consequences if they opted to keep their child at home against medical advice.

Numerous children in poor family circumstances were managed at home while numerous children without family problems were cared for in hospital. In this regard differences between hospital and home care families appear in the main to revolve around issues external to the family itself. For example, few differences exist in child dimensions such as temperament, management, care or in marriage and family environment domains while considerable differences exist in the social contact domains between hospital and home care groups. A specific example spanning close family and other influences concerns help with child care. Equal numbers of hospital and home care fathers are involved in child care tasks such as babysitting but mothers of hospital care children have lower overall levels of child minding assistance from others either during the day or at night. While social contacts have been seen here to be of major significance ^{AMONG} family variables, in differentiating between hospital and home care families the finding is not one which can be followed by obvious and easily enactable interventions which would facilitate the treatment of more children at home for gastroenteritis. The fostering and sustainment of adequate levels of social contacts for individuals and families is something which requires such factors as social planning and adequate personal finances if success is to be achieved on a broad level. The expense involved in such an undertaking may be considered in two ways. It may be seen as a luxury not affordable in the context of present day economies. Alternatively it may be seen as money directed to prevention which will otherwise have to be spent after a time lag for treatment and rehabilitation. The impact of investment in families at a preventative level has been outlined by Reif (1987) using family education and childhood hospitalization as the investment domain and childhood hospitalization levels as the measure of impact of the preventative spending. For Jerusalem families he showed that a third year of secondary school of at least one parent was associated with an average decline of 1.3 hospitalization days per infant. Since the average family size in Jerusalem was 3.8, he estimated (on gross levels) that an extra year of

schooling at the mid-high school stage would be associated with five fewer hospitalization days for children of that family (1.3 days by 3.8 children). This single potential impact of a further year's education for a parent would be equivalent to three quarters of the cost of that year's schooling. This example simply illustrates how costs are redistributed when preventative actions are considered. On a community-wide level and in longer term policies the issue of adequate social contacts for families needs to be considered and planned for. In the present situation the most feasible family variable to tackle immediately in order to improve gastroenteritis management would appear to be maternal anxiety about the problem.

4.3. MATERNAL ANXIETY

Maternal anxiety was an important variable in the doctors' study. It was as important in hospital referral decisions for gastroenteritis by doctors as was young age of child and single parenthood. It was also a clear discriminator between hospital and home care mothers and was significantly associated with social contact variables in the mothers' study.

In the doctors' study maternal anxiety was the only one of three non-medical factors involved in gastroenteritis management decisions which could be tackled by GPs (age and single parenthood being structural variables). This emphasises the importance of dealing with the anxiety of these mothers.

The general impression gained during the study from mothers was of high levels of anxiety about gastroenteritis which were in the main because of its unfamiliarity to them. This was so despite the fact that two thirds of mothers knew that gastroenteritis was managed by fluids. General knowledge regarding the management of gastroenteritis appeared to be quite different to the uncertainty and lack of confidence mothers experienced when faced with the episode in their own child. It is in this respect that a reassuring and confidence-enhancing doctor can play a crucial role in convincing mothers that they can manage the problem themselves. Many hospital care mothers seen after discharge commented on their confidence now to handle gastroenteritis at home having seen one episode being managed. There appeared to be very few repeat admissions for gastroenteritis (1 in 79 of the children) in this study and it was not an issue of sufficient size to be of any major concern to the hospital doctors. However mothers too reported that they would expect to handle future episodes with more confidence having seen one episode of gastroenteritis from beginning to end. These observations suggest that the management of one episode of gastroenteritis was a learning experience from

which future episodes would be handled more competently and confidently. It can also be suggested from these difficulties encountered by mothers with what was for many of them an unfamiliar experience, that clear information provision may be an appropriate and useful method by which to tackle the gastroenteritis problem.

Providing information on gastroenteritis to mothers at the time of the problem may help to alleviate many of the anxieties and misconceptions that mothers have and thus help mothers to manage the gastroenteritis with minimal medical intervention. That this is a useful idea is verified by the fact that two GPs and one Casualty Department encountered during the course of the study in the Dublin area, have taken the time to formalize written instructions on gastroenteritis management for their own patients. Many other GPs reported writing instructions for patients on gastroenteritis management during the consultation and 78% of doctors interviewed felt that written material on gastroenteritis for distribution to parents would be something which they themselves would use and find useful. The authors had been concerned about the views of doctors on the benefits and use of written material for patients and following from this the use or otherwise of such written material if available. The response in the present study illustrated that there is a very favourable attitude to such information from doctors, many of whom spend considerable time rewriting similar information for numerous patients.

From discussions with mothers and doctors a number of aspects of gastroenteritis would appear to need clarification in such written information:

- (a) the necessity to keep a child off milk products such as rice and custard as well as off milk itself during gastroenteritis;
- (b) the fact that a child will not 'starve' without milk or solids for a few days: many mothers worry about being unfair/cruel etc. to the child;

- (c) the fact that diarrhoea will not clear overnight but may persist for a number of days after treatment begins;
- (d) the fact that small but frequent sips of fluid are as effective for a child with gastroenteritis as large amounts of fluid at the regular feeding times.

Also important for written instructions for parents are guidelines on the recognition of a worsening medical situation. In gastroenteritis this relates to the symptoms of dehydration. This information gives reassurance and a sense of control to parents who are managing a sick child.

The type and format of information considered useful for such written material may be advised by the three examples compiled by Dublin doctors as mentioned already. These examples of recommendations to parents for gastroenteritis management are presented in Appendix 4 alongside similar instructions by two pharmaceutical companies for their oral rehydration preparations.

Information leaflets on gastroenteritis as suggested here tackle the problem at the secondary care level when parents seek help from medical services for their child's symptoms. An intervention at an earlier level is also possible. As mentioned already Morrell et al (1980) report on the effectiveness of a booklet on six common and minor ailments of children in a UK study. This booklet was distributed by GPs to mothers of young children. Interestingly two of the six symptoms were vomiting and diarrhoea, the others being stuffy/runny nose, sore throat, cough and minor trauma. The authors had found that these six symptoms were responsible for over half of the new demands for care of those under sixteen years and that these symptoms provoked parental anxiety and patient-initiated consultations. The booklet resulted in decreased consultation for these minor ailments by mothers without causing mothers to ignore symptoms which may have been more serious and which deserved medical attention. Similar information on six aspects of child and

family health care has just been compiled in Ireland into short video episodes for use with travellers. There has not yet been an opportunity to demonstrate the effectiveness or otherwise of these videos. However the general idea here of information on common child health and illness issues, be it through written or video instruction, appears to be a useful one for consideration on a wider level in the longterm. The distribution of written information to mothers could be organised through GPs since:

- (a) GPs see mothers and their young children often enough to allow such opportunistic distribution (in one practice study doctors saw all children under one at least three times in the year; Houston and Davis 1985); and
- (b) the presentation of such information by the GP may confer a sense of its importance and its use in the joint task of mother and GP, i.e. of keeping the child in good health.

This type of intervention would serve the dual function of being a primary level intervention and focusing on a range of child health domains rather than on the single problem of gastroenteritis.

From the findings emerging from both research studies and their implications, the focus now turns to the issue of hospitalization generally.

4.4 . HOSPITALIZATION FOR GASTROENTERITIS

Hospitalization for health care is increasingly coming under scrutiny. From the most complex aspects of hospital care such as coronary care units to more routine surgical procedures such as varicose vein treatment, there is now evidence showing that medical care without hospitalization is just as effective as that involving hospital care, for instance in maintaining life following myocardial infarction (Hill, Hampton and Mitchell, 1978) and in treating varicose veins (Piachand and Weddels, 1972). For children it has also been estimated that excessive numbers are placed in special care units and that including only those who would benefit medically would halve the admission rate and reduce considerable periods of separation of young children from parents (Richards, 1979).

If hospitalization is now questionable for these serious medical problems how much more then is it necessary to consider the benefits of hospitalization for minor self-limiting illness such as childhood gastroenteritis? Such hospitalizations number over 2,000 yearly in the under two year olds in the Republic of Ireland. The doctors' medical severity ratings in the present study showed that the problems of home and hospital care children were identical. This suggests that all of the hospitalized children could have been medically managed at home since the home care children were managed by their parents for the same medical problems without hospitalization. Only one hospitalized child was on treatment which would have actually required the hospital environment for its provision, i.e. intravenous treatment. These findings need to be remembered in the light of the recent European Parliament (1986) recommendations on childhood hospitalizations. For children they emphasize:

"the right to be admitted to hospital only if the treatment they require cannot be provided at home or on a day basis".

In terms of costs, hospital and home care mothers had equivalent numbers of medical service visits apart from hospitalization. Thus hospital stay for the hospital care group was not balanced by an increased number of medical service visits for gastroenteritis by home care families; it was an extra service used by the families with children hospitalized; the hospitalization costing over £500 per child on average (6.3 days x £80 daily cost). In all twenty three extra visits to medical services by home care mothers were offset by seventy six hospitalizations averaging 6.3 days duration. Costing the twenty three home care visits at their most extreme (i.e. home calls by GPs late at night) the extra cost of home care families is still under £500 at most. Meanwhile the cost of hospitalizing seventy six children for an average of 6.3 days was over £38,000; a considerable cost difference for a small selection of the children hospitalized for gastroenteritis over only a three month period. Applying these same figures in the national context, at least 2,000 hospitalizations for infantile gastroenteritis would be expected this year based on previous trends as outlined in Section 1. Using values from this sample of an average 6.3 days hospitalization (probably an underestimate since all of these children live near the hospital, a factor often shortening hospital stay) and hospital costs of £80 daily, the cost to the State of infantile gastroenteritis in 1987 would be over a million pounds (£1,008,000).

The study hospital does not operate an out-patient department thus all children are seen in an admissions department and almost all are hospitalized. (These children have in the main been seen previously by GPs or Casualty Department doctors and referred to this hospital). In the three month study period two children (of eighty one) fitting study criteria were sent home from the admission department on mothers' request to be allowed to handle the gastroenteritis problem themselves. Because of the responsibility of the hospital to provide infectious disease care to all, because

children are referred for hospitalization rather than for review or queries on management, and for reasons of liability it is difficult for the hospital in present circumstances to have any control of its intake numbers. In this context then, control of the numbers of hospitalizations must come from the doctors referring children to the hospital.

A further problem of organization and administration is the fact that the hospital under study, as a national infectious diseases centre, is obliged to provide facilities to contain infectious diseases. In practice there is no waiting list for admission into the hospital thus there is no bed supply/waiting list deterrent to doctors considering referring a child to this hospital. It has long been established that bed supply determines bed utilization (see for example, Roemer, 1961 b). Thus some of the problem of the numbers of young children hospitalized for gastroenteritis may reflect this immediate access to hospital beds by doctors. There is no easy solution to this dilemma.

It has also been noted that shorter distances from hospital result in higher referral rates/utilization of a hospital service (see Sheldon, Brooke and Rector, 1985). This is obvious in this study from the high percentages of children hospitalized from the immediate Dublin area itself; 49% of the children under two hospitalized in the study hospital in the first four months of 1986 were from Dublin city and county. In this context the use of Casualty Departments in the Dublin area for gastroenteritis can be considered.

4.5. CASUALTY DEPARTMENT USE

At the level of Casualty Department management of gastroenteritis the present study illustrates quite different management outcomes for the two children's Casualty Departments studied. Some of the reasons for this such as the presence of a consultant in one Department have already been discussed. Structural features of such situations need to be considered in more detail in order that the various costs and benefits of different organisational aspects of gastroenteritis and other symptom management in Casualty be clarified. For present purposes the feeding back of information to these Departments on their management is a first step in this direction.

Casualty Department analysis for the Dublin area for the first three months of 1987 revealed 307 infantile gastroenteritis visits. These are analysed in more detail later. For the present some estimate of the cost of Casualty Department use for gastroenteritis is attempted. Three hundred and seven (307) cases in one quarter is equivalent to at least 1,000 cases over the year (allowing for fewer attendances for gastroenteritis in the summer). Using figures adopted by the Irish College of General Practitioners in 1986 from equivalent British work, out-patient services are costed at a 1:32 ratio of admissions (see p.29). In the present situation (of an average of 6.3 days stay in hospital for gastroenteritis at £80 per day) this comes to £15.75 ($6.3 \times £80$ divided by 32) or £15,750 for 1,000 visits yearly. Childrens' Casualty Departments in Dublin thus expend £16,000 at a minimum on gastroenteritis management yearly. No estimates are possible for hospital throughout the country.

The other and primary medical option to consider in gastroenteritis management is the G.P.

4.6. GASTROENTERITIS MANAGEMENT BY GPs

Does gastroenteritis have a particular significance for doctors that would influence referral rates?

Gastroenteritis certainly carries a legacy of being a serious and often fatal childhood disorder, much remembered by the older generation. However most doctors in this study were young and did not train or practice in this environment. Yet Ellis et al (1984) suggest that the overestimate of clinical severity and dehydration by GPs in admitted hospital cases was very common. Bourne (1976) discusses the fears that doctors have of certain illnesses and the importance of the illness-doctor as well as the patient-doctor relationship. It may be that gastroenteritis, as a constellation of symptoms, is seen as serious because of the serious connotations similar symptoms may have such as in the detection of meningitis. Sheldon et al (1985) point out that gastrointestinal symptoms are seen as one of the three areas of highest uncertainty in diagnostic terms. The cost of ignoring gastrointestinal symptoms may be high as the analysis of 145 unexpected child deaths at home illustrates. Sixty one per cent (61%) of children versus 23% of controls had gastrointestinal symptoms in the last week of life (Stanton, Downham, Oakley, Emery and Knoweldan, 1978). In the words of one doctor in Horobin and McIntosh's (1977) study of responsibility in general practice:

"if you err on the right side you are playing safe, if you err on the wrong side, just once, you regret life long". (p.98).

This then is always the doctor's dilemma in decision making on gastroenteritis as on any other medical problem.

One suggestion which may have some influence on an individual doctor's management of gastroenteritis is of informing doctors of the management strategies of their colleagues. Throughout this study many doctors with quite individualistic styles of gastroenteritis management (including high referral

rates and use of medication) outlined their management styles and made remarks indicating that they assumed other doctors managed gastroenteritis similarly. The individual work situation of doctors lends itself to such unawareness of the management styles of one's colleagues.

Also of concern from the present study is the powerful influence of negative previous experiences and of working experience with gastroenteritis. In both cases experience resulted in higher levels of hospital referral. It is very difficult to tackle the influence of negative experiences on present referral patterns. The counterintuitive finding that those with experience of working closely with gastroenteritis in a hospital context should refer more children to hospital can be seen as compatible with research findings in diverse areas. The initial training of these doctors can be seen as a sensitising period to the problem of gastroenteritis. Thus while on a general level these doctors do not see gastroenteritis as being any more serious than other doctors would, their earlier sensitization to the potentially extreme/severe outcome of gastroenteritis results in their increased likelihood of referring a child to hospital. As a parallel a physiological study of parachute jumping is outlined. Novice jumpers experience and report physiological arousal just as they jump from the plane (Epstein and Fenz, 1967). More experienced parachuters do not report feeling anxious. However they experience the same physiological arousal as do novices except that the peak of their arousal occurs some time before the jump takes place. In other words they do react physiologically in a preparatory setting some distance and time away from the actual event. The combination of stimuli about them in the build-up to the event provides a sensitizing environment sufficient to trigger in them the physiological reaction once created by the jump situation itself.

In another research context, repeat exposure to experimental pain stimuli resulted in increased physiological activity on each subsequent exposure (Shiple, Butt, Horwitz and Farby, 1978). Thus here again repeat exposure to the stimulus resulted in increasing sensitization rather than the expected habituation to the stimulus. It may be that doctors with previous experience of difficult gastroenteritis situations in hospital now react in a sensitized fashion to the potential dangers ahead of a present case of childhood gastroenteritis. The only feasible way of tackling such sensitization of doctors in the medical areas where they have most experience would appear to be to inform doctors that such sensitization does occur. As with information on the practises of their colleagues this type of self-awareness of one's working style is perhaps the only widespread and feasible method of influencing the working practices of large numbers of doctors working individually.

The importance of influencing doctors who are the frontline in gastroenteritis management is stressed once again since from the study of both doctors and mothers in this present research, the influence of doctors on management decisions is obvious.

On a practical level each GP has responsibility for his/her actions in the medical management of gastroenteritis. For GPs there are two major constraints on home management of gastroenteritis. Firstly GPs may not have the time to see a mother and child a number of times or to sufficiently alleviate a mother's anxieties. Secondly a number of doctors interviewed mentioned the penalties, aside from time constraints, of home visiting. For private patients doctors report being loathe to suggest home visiting because of the extra cost incurred to the family and the fear of

misunderstanding the doctor's motives in suggesting such actions. For GMS patients doctors reported finding themselves concerned about home visiting accountability; doctors can be queried as to the numbers of home visits they carry out with penalties for 'overuse' of this option (overuse here meaning above levels of use set by the Department of Health).

Thus in all, the present fee-per-item system of remuneration for GPs militates against GPs spending sufficient time with some mothers for effective instruction and reassurance and the present system of GMS accountability encourages hospitalization and militates against home visits for borderline cases. The cost of such time constraints cannot readily be estimated but they are most probably considerable. Apart from the numbers of children hospitalized because of time constraints in home management, there is also a group of mothers who recall or revisit a doctor due to dissatisfaction with the initial consultation. This visit may be to the same or a different GP or to a Casualty Department. Bearing in mind the high numbers of medical consultations for gastroenteritis in the first place, such potential exacerbation of the size of the problem is of concern. Some measure of the size of the problem of gastroenteritis at GP level in the Republic of Ireland can be attempted from national figures and present study results. About 1,800 GPs practice in the Republic (Irish College of General Practitioners, personal communication). These GPs see an average of 163 patients weekly (Irish Medical Times, 1987b). From the present study GPs estimated that they saw 4.6 cases of infantile gastroenteritis weekly (thirty seven in an eight week period) in an average of 181 consultations: thus 2.6% of all their weekly consultations were for infantile gastroenteritis. 2.6% of an average workload is 4.2 patients: thus Irish GPs see approximately 7,628 cases of infantile gastroenteritis in an average week (4.2 x 1,800). A crude estimation of the cost of this to the State is as follows: about 38% of the population qualify for free medical care (Department of Health, 1986) and at a cost of

£3.85 (the minimum GP surgery charge) costs come to £580,308 yearly at least. In other words infantile gastroenteritis visits to GPs cost the State at least a half million pounds (£500,000) in consultation charges yearly.

Attempts at tackling gastroenteritis can also be considered at a level intermediate between the GP/Casualty Department and hospitalization.

4.7. OUT-PATIENT FACILITIES

Beyond the primary level of help seeking for gastroenteritis (i.e. GPs and Casualty Departments mainly) there is the option of day care or out-patient care of children as an alternative to hospitalization. This option is already successfully practised in Cork at St. Finbarr's Hospital (see Fitzgerald et al, 1982). For such a service to be useful the distance to the out-patient clinic must not be excessive, e.g. St. Finbarr's Hospital operates in a seven mile radius catchment area. Since a large percentage of the children hospitalized for gastroenteritis in the study hospital (49%) come from Dublin itself, there may be the possibility of usefully setting up out-patient clinics. For the Dublin region some overview of the size of the problem in different areas is a prerequisite to consideration of the positioning of such clinics. It was not possible within the constraints of this study to have an estimate of the numbers of cases of childhood gastroenteritis seen by GPs in different Dublin areas. However Casualty Department usage for gastroenteritis in the three month period of the present study was documented by Dublin location as outlined in Table 4.1. Postal address numbers were used as the most convenient Dublin area designation. These are outlined in Figure 4.1. Numbers of gastroenteritis cases are approximate as hospital admission books rather than individual case records were consulted for reasons of time constraint. Any child with gastroenteritis symptoms and whose treatment indicated gastroenteritis (e.g. recommended Dioralyte or referral to the infectious disease hospital) and

did not indicate other problems such as otitis media was included as a gastroenteritis case. Admission books at the two children's hospitals in this study suggest about twenty four attendances weekly to Casualty Departments for infantile gastroenteritis with about five hospital admissions weekly through these Dublin Casualty Departments.

An examination of Dublin postal area figures reveals three main problem areas for gastroenteritis. Together Dublin areas 5, 7 and 11 account for almost one third of Casualty Department attendances (95/307) and exactly one third of the hospital referrals (22/66). Locating these three areas on the postal district map, it is evident that they circle the Dublin 9 area on Dublin's north side. They are also convenient to (and on the route to the city's Casualty Departments from) North County Dublin. From these combined areas then (Dublin 5, 7, 9, 11 and North County Dublin) came 40% of Casualty Department attendances and 41% of hospital referrals from Casualty for gastroenteritis in the first three months of 1987.

The second centre of gastroenteritis problems in Dublin is the area incorporating Dublin 8, 10, 12, 15 and 20. Here fifty five children attended Casualty for gastroenteritis and there were eight admissions in the first three months of this year.

The third centre of such problems for Casualty Department is the Dublin 22/24 area with forty one visits to Casualty and twelve admissions in three months.

These three problem centres suggest the most worthwhile locations for tackling the gastroenteritis problem on a day care basis. Day care centres in Tallaght (Dublin 22/24), Ballyfermot (for Dublin 8, 10, 12, 15 and 20) and Ballymun (for the North Dublin problem) would provide appropriate bases for such day care management of gastroenteritis. The Ballyfermot centre could be incorporated into the framework of the present infectious diseases hospital in the area.

Table 4.1 Casualty Department usage for gastroenteritis symptoms in the under 2s by Dublin location for January - March 1987.

D Dublin Postal Area	Attending Casualty Department A or B	Hospitalized from Casualty for gastroenteritis
1	16	4
2	5	-
3	10	-
4	2	1
5	22	5
6	5	1
7	28	5
8	11	2
9	10	-
10	7	-
11	45	12
12	17	3
13	9	1
14	1	-
15	16	3
16	2	1
17	13	2
20	4	-
22	11	3
24	30	9
N. County	17	5
S. County	2	-
Lucan	3	-
N.F.A.	5	3
Outside Dublin	11	6
Total	307	66

* N.F.A.: No fixed abode; travellers.

Postal address numbers were used as the most convenient Dublin area designation. These are outlined in figure 4.1.

Day care services have many advantages over hospitalization. There is the obvious financial benefit of not having a 'bed-night' cost. Day care can also provide an opportunity for instructing mothers in feeding and hygiene principles and can allow early discharge of hospital patients with continued review via day care as is outlined in a description of the Cork experience (Fitzgerald et al. 1982).

Since Casualty Department figures for gastroenteritis in Dublin were collected here and Census information was readily available on the West Dublin area studied, it was decided to investigate the use of Casualty Service proportional to the infant population in various West Dublin areas in order to see if families in different areas had different levels of use of Casualty Services. If this was so then extra efforts could reasonably be focused in these areas to encourage the use of the GP rather than emergency services where possible. This follows on the view of Johnson and Johnson (1986) that epidemiological information systems on small areas allows for the pinpointing of problem spots which can be tackled in detail rather than extending services etc. in a blanket fashion across large areas. Looking at West Dublin postal areas and their closely-corresponding electoral divisions, Table 4.2 shows that the geographical spread of Casualty Department use for gastroenteritis matches (and is not significantly different from) the proportion of children in the different areas.

Table 4.2 Proportional representation of children under two in various West Dublin areas (1981 Census) and in Casualty Department attendances for gastroenteritis (January-March 1987)

Area	Population levels %	Casualty Department Attenders %
Dublin 10	9	10
Dublin 15	21	23
Dublin 20	10	6
Dublin 22	10	15
Dublin 24	42	42
Lucan	8	4
N	10940	71

Thus for instance while the largest percentage of casualty cases from West Dublin come from Dublin 24 (Tallaght) and it therefore makes economic sense to base an out-patient service here rather than at other West Dublin locations, parents in this area are not more likely than other parents to use Casualty Department for their child's problem.

To return to the problem of the management of gastroenteritis, some note of present developments in the health services in Ireland must be made to provide a setting for the most likely and appropriate methods of improving the situation.

4.8. GASTROENTERITIS MANAGEMENT IN THE CONTEXT OF THE CURRENT IRISH HEALTH CARE SITUATION

Three main developments, all interconnected, deserve specific mention. The first and most specific of these is the introduction, since the completion of this research (i.e. in July 1987), of a £10 charge for Casualty Department attendance. Up to this such attendances were free. The aim of this measure is to encourage GP use unless it is essential that a Casualty Department be contacted. In future this measure may decrease the numbers of parents seeking advice for minor childhood illnesses (20% of parents in this study used Casualty Services).

The second development is the publication in 1986 of a discussion document by the Irish College of General Practitioners on "The Future Organization of General Practice in Ireland". Among their eleven priorities for reform of the present health care system are the following which are most appropriate to gastroenteritis management:

- "- rapid expansion of preventative care in general practice balanced by a reduction in the volume of consultations for minor episodes of illness.
- Fewer and shorter admissions.
- Appropriate use of the Accident and Emergency departments of hospitals.
- A re-education of patient expectation and demand backed up by appropriate incentives in favour of primary care".
(pp.29-30).

Their views on the most appropriate strategies to effect such changes include:

- "- Create incentives for GPs to retain clinical responsibility rather than refer without prejudicing quality of patient care.
- Provide incentives for the longer consultations required to manage certain conditions without referral.
- Make it easier and cheaper for all patients to attend their GP rather than the out-patient/accident and emergency department of their local hospital.
- Enable earlier discharge from hospital by properly assessing domestic circumstances in advance and providing adequate back-up afterwards." (pp. 11-12).

The focus of the GP document then is on creating the climate, both for doctors and for patients, which would foster home and GP care rather than involvement with more specialized aspects of the medical care system.

The third development is again a document. This is the new policy statement by the Department of Health on the direction of health care for the future called "Health - The Wider Dimensions" (1986). This document again, as is the case with the GP report, strongly argues for the expansion of primary health care and the management of health problems at the lowest level of medical complexity. The commitment to health promotion in the policy links well with attempts to management gastroenteritis in the home.

Bearing in mind these developments and the findings of the present project a number of final comments can be made on the options for change in the management of gastroenteritis. The two major changes suggested here have been of providing information to parents and of providing out-patient clinics to which doctors could refer children instead of admitting

them to hospital. Providing information to parents would appear to be the better initial choice for a number of reasons. Firstly information can be distributed to a countrywide network of GPs whereas an out-patient clinic can only operate usefully within a limited radius. Secondly the setting up of units specific to particular childhood diseases appears to contravene principles of general health care services and is an expensive undertaking. Thirdly there may be a danger of either parents or doctors using an out-patient service exclusively for the management of infantile gastroenteritis instead of attempting to manage it at GP level. On these points the recent Irish College of General Practitioners document has a specific view:

"Do not set up special primary care clinics to correct deficiencies in existing areas unless it can be clearly shown that general practice, with appropriate assistance, is incapable of correcting them." (p.32, 1986).

It may indeed be that the provision of leaflets to GPs for distribution to patients when necessary will also heighten awareness among GPs of the overall benefits of aiming to manage their gastroenteritis cases at home.

The information presented here at national level, at the level of a random sample of West Dublin GPs, at Dublin Casualty Department level and at Dublin in-hospital level provides a well-documented baseline from which to gauge the impact on the subsequent management of gastroenteritis, of a campaign such as the provision of leaflets. In this respect the present project fits with the emphasis in the Department of Health document on health research with a policy orientation. Using the present study as a standard the effects of an information campaign for parents could readily be quantified in relation to the costs incurred. From the authors' perspective this would appear to be the most effective strategy for action.

The recommendations made in this section (combining information from the doctors' and the mothers' studies) are briefly summarized now. Recommendations are ranked in order of their immediate feasibility and their specificity. The more specific and more immediately feasible recommendations are presented first.

RECOMMENDATIONS

- (1) To provide clear gastroenteritis management instructions on a leaflet for distribution by doctors during a gastroenteritis consultation. This should be aimed at decreasing maternal anxiety and increasing compliance with specific instructions.

- (2) To provide outpatient facilities as an intermediary between General Practitioner/Casualty Department management and inpatient treatment of gastroenteritis.

- (3) To educate medical staff about the non-medical factors (such as sensitization) which influence their management decisions.

- (4) To provide adequate opportunities for social contact to young families via social policies and provisions.

In sum, the present study outlined the current situation with regard to gastroenteritis management in Ireland. It then systematically evaluated the management decisions, and the basis thereof, of GPs and Casualty Department doctors. The families of children hospitalized for gastroenteritis were compared with families managing the same situation at home. Combining these two research projects, the impression was of the major influence of the individual doctor on the management of gastroenteritis. The findings of the present study indicate that there is considerable scope for improvement in present gastroenteritis management. Possible improvements have been suggested at the level of mothers' and GPs' management and at the level of management intermediate between the GP and hospitalization. Improvements in the management of this minor yet time and resource consuming childhood illness is one step in the direction of decreasing medical intervention and increasing an individual's sense of control over, and responsibility for, his/her own health and the health of his/her children.

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APPENDICES

APPENDIX 1
GASTROENTERITIS VIGNETTE INFORMATION

SOCIAL INFORMATION

CASE 1

single mother living in
one child
family - basic education
not working outside the home

CASE 2

parents live in
only child
father works as carpenter
mother is a housewife
family - basic education

CASE 3

parents live in
3 other children in family
father gas fitter
mother housewife
family - basic education

MEDICAL INFORMATION

CASE 1

Male

vomit x 2/7 settling
diarrhoea x 1/7 green, watery & offensive
O/E Temp. 100⁰F Hydration good

CASE 2

Male

diarrhoea x 1/7
vomit x 6 this a.m.
O/E Temp. 100⁰F Mild dehydration

CASE 3

Male

diarrhoea & vomiting x 3/7
diarrhoea x 7 this a.m.
O/E Temp. 101⁰F Mild dehydration

Example of a Vignette presented to doctors.

child's age -	3/12,
Medical problem -	diarrhoea x 1/7 vomit x 6 times this morning Temperature 100 ^o F Mild dehydration
Social background -	only child parents live in _____ father works as carpenter mother is a housewife family - basic education
Mother's reaction -	quite anxious

APPENDIX 2
DOCTORS' INTERVIEW SCHEDULE

G.P. Management of Gastro-Enteritis

G.P.'s Name: _____

Date/Location: _____

Vignette Location: _____

Q1. Gastro-Enteritis Vignettes

OPTIONS

Send home with

- | | |
|---|-----------------------------------|
| 1. reassurance | 9. arrange Health Nurse to call |
| 2. information | 10. antipyretics (e.g. Calpol) |
| 3. clear fluids | 11. antibiotics |
| 4. contingent request to telephone back. | 12. antidiuretics |
| 5. noncontingent request to telephone back. | 13. antispasmodics (e.g. Maxalon) |
| 6. contingent request to return | 14. other _____ |
| 7. noncontingent request to return | _____ |
| 8. arrangement to call to home | 15. hospitalization. |

G.P. Decisions

NO.	OPTIONS	CASE	NO.	OPTIONS	CASE	NO.	OPTIONS	CASE
1			8			15		
2			9			16		
3			10			17		
4			11			18		
5			12			19		
6			13			20		
7			14					

Q2. What is your general treatment of Gastro-Enteritis.

Q3. What is your opinion on the use of the following management strategies with Gastro-Enteritis.

1. reassurance _____
2. information _____
3. clear fluids _____
4. contingent request to telephone back _____
5. noncontingent request to return _____

- 3
6. Contingent request to return _____
 7. noncontingent request to return _____
 8. arrangemnt to call to home _____
 9. arrange Health Nurse to call _____
 - 10 antipyretics (e.g. Calpol) _____
 11. antibiotics _____
 12. antidiuretics _____
 13. antispasmodics (e.g. Maxalon) _____
 14. other (if mentioned in Q1.) _____
 15. Hospitalization _____

4. In treating gastro-enteritis do you send many patients (i.e. under 2's) to hospital? (%)

- _____ visit many patients at home initially?
- _____ visit many patients as a follow-up?
- _____ request recall visit from parents?
- _____ request recall on telephone from parents?
- _____ arrange Health Nurse to call?

5. Approximately how many children (under 2) have you seen in the past 2 months with gastro-enteritis? _____

6. What are the factors you consider in deciding whether or not to refer children to hospital for gastro-enteritis? _____

7. In your management decision on gastro-enteritis are the following factors considered to be relevant by you?

0. No. 1. Yes.

- | | | | |
|-------------------------------------|-----------|---|-------|
| 1. age of child | _____ | 14. meaning of hospitalization for parents | _____ |
| 2. sex of child | _____ | 15. patients' neighbourhood | _____ |
| 3. one/two parent family | _____ | 16. view of hospital on gastro-enteritis admissions | _____ |
| 4. mother working outside home | _____ | 17. parenting skills | _____ |
| 5. no. of other children in family | _____ | 18. type of residence | _____ |
| 6. first born child | _____ | 19. maternal depression | _____ |
| 7. young mother (<20) | _____ | 20. maternal anxiety | _____ |
| 8. family education | _____ | 21. crowding | _____ |
| 9. distance from practice | _____ | 22. influence of hospitalization on child | _____ |
| 10. patient unknown to G.P. | _____ | 23. marital disharmony | _____ |
| 11. impression of poor hygiene | _____ | 24. _____ | _____ |
| 12. type of feeding (breast/bottle) | _____ | 25. _____ | _____ |
| 13. family finances | (2) _____ | | |

_____ any factors I have not mentioned that you consider relevant in a broad way? _____

Q. 8 Remembering your G.P. training, do the factors you take note of (in Q6) concur with your training or has your management of gastro-enteritis changed from that time? (If so, in what way (s))?

Q. 9 Where were you trained as a Doctor?

Academic _____ Paediatric _____ If D.C.H. _____

Q. 10 What in your opinion are the effects, if any, of hospitalization on young children?

Generally _____

Gastro-enteritis _____

Q. 11. In the present Irish context are there any ways you can suggest to SAFELY decrease the number of childhood hospital admissions for gastro-enteritis?

a) leaflets on gastro-enteritis to supplement G.P. information?

b) media message on gastro-enteritis? _____

c) videos in surgery/clinics? _____

Q. 12 Do you have any advice you regularly give to parents if their children are being hospitalized, would you make any recommendation on parental visiting? _____

Q. 13 In terms of severity, what is your own summary of gastro-enteritis as an illness? _____

Q. 14 a) have you ever had a bad experience with a gastro-enteritis case if so explain. _____

b) if no bad experience, what would have been your most serious encounter with the illness? _____

APPENDIX 3
MOTHERS' INTERVIEW SCHEDULE

Child's Name: _____ Age: _____ Sex: _____

Treatment: _____ Onset of Symptoms:

Resolution of symptoms:

I'd like to begin by getting a few details about your family before going on to talk about your child.

A/ Current Family Structure

1. First of all how old are you?

2. Are you:- 1. married?
 2. living with someone?
 3. single?
 4. widowed?
 5. divorced?
 6. separated?

3. How old is he?

4. How long have you been married now/living together? (years

5. And have either of you been married before/living with someone?

6. If no cohabitee: do you have a boyfriend at present?

7. Family Composition:-

(a) People in the household:-

A house hold consists of a group of people who all live at the same address and who are all catered for th the same person. List below all the members of this household. Include the sudty child N, the present parents and others, e.g. relatives or lodgers, who are members of this household. Exclude any who are only at home for short periods, enter these in table (b) below.

Relationship to N (e.g. father, stepbrother) or status in the household (e.g. lodger)	AGE	SEX	EDUCATION	OCCUPATION
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

6. Any children not in home:-

11.

12.

13.

8. (a) What is the relationship to N of the person now acting as his/her mother?

Relationship to N

- Natural mother1
- Mother by legal adoption2
- Stepmother3
- Foster mother4
- Grandmother5
- Elder sister6
- Cohabitee of father7
- Other mother figure, specify8

(b) What is the relationship to N of the person now acting as his/her father?

Relationship to N

- Natural father1
- Father by legal adoption2
- Stepfather3
- Foster father4
- Grandfather5
- Elder brother6
- Cohabitee of mother7
- Other father figure, specify8
- No father figure9

B/Gastro-Enteritis Episode

Child's Name: _____ Age: _____ Sex: _____

1. Description of episode

Before seeking help from health services:-

- | | | |
|---|--------------------------|-----------|
| a) extent of vomiting & diarrhoea daily (most severe) | <input type="checkbox"/> | vomiting |
| | <input type="checkbox"/> | diarrhoea |
| b) Duration (days) | <input type="checkbox"/> | vomiting |
| | <input type="checkbox"/> | diarrhoea |
| c) Duration irritability (days) | <input type="checkbox"/> | |
| d) duration raised temperature | <input type="checkbox"/> | |
| e) Duration of lethargy | <input type="checkbox"/> | |
| f) other problems? | | |

2. Action At Home

- a) on mother's own knowledge _____

- b) if lay advice sought, from whom? _____
_____ what? _____

3. Contact with Health Services

- a) who/where did you contact? _____
time of day _____ day of week _____
- b) what was the factor which persuaded you to seek help? _____

4. Outcome

- a) advice etc. given _____

- b) your reaction to this _____

- c) did you follow advice given? _____

5. a) How worried were (are you about the episode of gastro-enteritis?)

0. not worried
1. slightly worried
2. quite worried
3. very worried

- b) (if worried) what are/were your major reasons for worry?

- c) Did/do you have anyone you feel you can talk to or get help with these worries? _____

6. What do you think gave your child gastro-enteritis? _____

7. Do you know what any common causes of gastro-enteritis are? _____

8. What are the common forms of treatment for gastro-enteritis? _____

9. What type of an illness would you say gastro-enteritis is? (e.g. stress related, hereditary etc.) _____

10. How severe an illness do you think it is? _____

11. Where have you learned about gastro-enteritis? _____

12. a) Have you had any contact with gastro-enteritis before?
own family _____
own children _____
other (explain) _____
b) any particularly bac experience that you have had/heard of with gastro-enteritis? _____

13. What was the reaction of your family, friends and neighbours to the news that _____ had gastro-enteritis? _____

8. any advice you have, as a parent dealing with gastro-enteritis

- a) for other parents _____

- b) doctors/hospitals _____

Q4c.

(for those with hospitalised children) were you given a copy of regulations and suggestions on visiting by the admissions office?

If so what did you think of it? (Did it change your attitudes, behaviour etc.)

D/INDEX CHILD'S HISTORY

We are particularly interested in children like _____ who have had Gastro-Enteritis. I'd like to go on and talk about him in more detail.

1. Before this child's pregnancy began, did you really want (a/another) child at some time?
 - (0) No, didn't want another child
 - (1) Don't know, didn't care
 - (2) Yes

2. Did you become pregnant sooner than you actually wanted, later than you wanted or just about the right time?
 - (0) Sooner
 - (1) Right time
 - (2) Later
 - (3) Don't know

3. Attitude to pregnancy:-
 - (1) Definitely unhappy, rejecting
 - (2) Unhappy, resigned
 - (3) Mixed, predom. -tv
 - (4) Mixed, predom. -tv
 - (5) Happy

4. Attitude to infant at birth:-
 - (1) Definitely unhappy, rejecting
 - (2) Unhappy, resigned
 - (3) Mixed, predom. -tv
 - (4) Mixed, predom. -tv
 - (5) Happy

5. First maternal contact with infant after birth:-
 - (1) 24 hrs.
 - (2) 12 - 24 hrs.
 - (3) 6 - 12 hrs.
 - (4) 3 - 6 hrs.
 - (5) 1 - 3 hrs.
 - (6) Within 1 hr.

6. Support from husband at birth:-
 - (1) Very unsupportive
 - (2) Unsupportive
 - (3) Neutral
 - (4) Supportive
 - (5) Very supportive

7. After regular contact was established, was there any period of 1 day or more during the first month of N's life when mother was not in normal contact with N, e.g. to hold and/or to feed. (record no. of days)

Give reason(s) for separation(s) _____

8. Was N breast fed partly or wholly, even for a few days?
 (0) no, was not breast fed at all why not? _____
 (1) for less than 1 month
 (2) for 1 month or more but less than 3 months
 (3) for 3 months or more

9. Milk feeding now:-
 (1) on breast only
 (2) on bottle only
 (3) on both
 (4) bottle nights only
 (5) weaned from milk feeds

10. At what ages did N receive immunisations, against what diseases and where? Enter everything given for each attendance.

Att.	N's age in months	Diseases immunised against				
		Diphtheria	Tetanus	Whooping Cough	Poliomyelitis	Measles
1st						
2nd						
3rd						
4th						
5th						
6th						

11. Are/were there any of the following difficulties with N as a baby (i.e. under 6 months of age)?

a) Excessive crying 0. No

b) Frequent feeding problems 1. Yes

c) Frequent sleeping difficulty at night

12. Has N ever had an accident requiring medical advice or treatment?

Please include accidents on the road, home and elsewhere, accidental ingestion of medicines/poisons, burns/scalds, fractures, eye injuries, near drowning, bad cuts and orther injuries, with or without unconsciousness, and non accidental injuries.

(0) No

(1) Yes

Ring all that apply and give details:-

1) accidental swallowing of medicines or poisons _____

2) burns/scalds _____

3) road traffic accident(s) _____

4) accident resulting in unconsciousness _____

other accidents _____

total number of accidents _____

Child's Temperament

In comparison with what you know of other children of the same age, how would you rate your child as to the following issues:-

13. Activity level - the amount of physical activity during sleep, feeding, play, dressing, etc.

(1) high (2) medium (3) low

14. Regularity - of bodily functioning in sleep, hunger, bowel movements, etc.

(1) fairly regular (2) variable (3) fairly irregular

15. Adaptability to change in routine - the ease or difficulty with which initial response can be modified in socially desirable way.

(1) generally adaptable (2) variable (3) generally slow in adaptation

16. Positive or negative mood - amount of pleasant or unpleasant behaviour throughout day.

(1) generally positive (2) variable (3) generally negative

17. In general, temperament of child is:-

(1) easier than average
 (2) about average
 (3) more difficult than average

18. Relationship of parents with child

- (1) very poor
- (2) poor
- (3) neutral
- (4) good
- (5) very good

mother

father

E/PARENTING

Experience with babies

Now I'd like to know how much experience you have had with babies.

- 1. First, experience with babies around the house when growing up. Would you say none, a little, some, or a great deal? 0. little or none
- 2. Reading about baby care 1. some
- 3. Attending classes in prenatal care or care of the baby 2. great deal
- 4. Babysitting with other people's babies

Health Information (Babies)

Now, please tell me whether you think the following statements are true or false.

- 5. A baby needs to be more warmly dressed than an adult.
- 6. It is good practice to prop a bottle so that a baby can feed himself. 0. False
- 7. Excitement can often cause a baby to spit up. 1. True
- 8. If a baby is fat, you know he is healthy
- 9. The window in a baby's room should never be opened in the winter.
- 10. An overdosage of aspirin is a common cause of poisoning in children.
- 11. Some babies often spit up after all their feedings.

Parenting advice

- 12. Do you have anyone/anything to turn to for advice on how to bring up your children?
 - 0. No model/advisor
 - 1. Mother/mother-in-law
 - 2. Media : TV, magazines
 - 3. _____
 - 4. _____

Satisfaction with parental role

- 13. In general, do you/your husband feel that having the children has restricted your life?
On the whole, do the advantages outweigh the advantages?
Satisfaction rating (1 - 5)
 - 1. very dissatisfied
 - 2. dissatisfied mother
 - 3. neither father
 - 4. satisfied
 - 5. very satisfied

Management of Feeding

14. (a) Feeding Difficulties Last 3 months
- | | | |
|-------------|---------|----------------------|
| 0. none | Refusal | <input type="text"/> |
| 1. a little | Messy | <input type="text"/> |
| 2. a lot | Faddy | <input type="text"/> |

(b) How do you manage this?

(c) Overall handling of feeding

Take into account child and mother distress and effectiveness of mother's handling:-

- | | |
|-----------------------------------|----------------------|
| 0. satisfactory | |
| 1. some handling problems | <input type="text"/> |
| 2. considerable handling problems | |

Bedtime Management

15. (a) Bedtime (index child) _____

(b) Bedtimes - Regularity Last 3 months

- | | |
|-----------------------|----------------------|
| 1. Regular | |
| 2. Regular, flexible | |
| 3. Regular, indulgent | |
| 4. Quite variable | |
| 5. Very irregular | <input type="text"/> |

(c) Settling Problems

- | | |
|--------------------------|----------------------|
| 0. No problem | |
| 1. Once a month | |
| 2. Several times a month | |
| 3. Once a week | |
| 4. Several times a week | <input type="text"/> |
| 5. Nightly | |

(d) How do you deal with this? _____

(e) Night Waking - after 'settled'

- | | |
|--------------------------|----------------------|
| 0. No problem | |
| 1. Once a month | |
| 2. Several times a month | |
| 3. Once a week | |
| 4. Several times a week | <input type="text"/> |
| 5. Nightly | |

(g) Overall Handling of Bedtime

- 0. Satisfactory
- 1. Some handling problems
- 2. Considerable handling problems

Management of Crying

15. (a) All young children cry from time to time:
How often does this happen with

Crying (any reason)

- 0. Hardly ever
- 1. Sometimes
- 2. Often
- 3. Cries a great deal
- 4. Always crying

- (b) Does his crying ever get you down or do you generally feel able to manage? _____

- (c) When he cries - perhaps for no good reason, or in a temper - what do you do with him? _____

(d) Overall Handling of Crying

- 0. Comforts child easily
- 1. Some problems - e.g. irritated, upset
- 2. Major problems in comforting child

Management of Discipline

16. All young children lose their tempers or are naughty or disobedient at times. In what sorts of ways is he/she naughty?

(a) Note behaviours defined as naughty : example

- 1. _____
- 2. _____
- 3. _____
- 4. _____

(b) Parental view of naughtiness, disobedience

- 0. Good child
- 1. Some naughtiness, easy to control
- 2. Some naughtiness, some difficulty to control
- 3. Some naughtiness, hard to control
- 4. Definitely a problem, naughty child

(c) How do you/your husband deal with your children when they are disobedient?

0. does not discipline child

1. scolding

2. smacking by hand

mother

3. " by instrument

father

4. other

9. NA

(d) Overall handling of discipline

0. satisfactory

1. some handling problems

2. considerable handling problems

IRRITABILITY

Mother's irritability (not arguements)

17. All parents get irritable with their children sometime - I mean snappy or likely to fly off the handle with them.

(a) How often do you get irritable with the children:-

Mother's irritability

0. 1/12 or less

1. more than 1/12 x to 1 x pw

2. more than 1 x pw - 4 x pw

3. 5 - 7 x pw

4. more than daily

(b) What sorts of things make you feel like that? _____

18. Father's Irritability

(a) How often is your husband like that with the children

Father's Irritability

0. 1 per 1/12 or less

1. more than 1/12 x - 1 x pw

2. more than 1 x pw - 4 x pw

3. 5 - 7 x pw

4. more than daily

9. NA

(b) what sorts of things make him irritable? _____

F/MARRIAGE

Irritability between married couple

1. (a) What about getting irritable with your husband? How often would you get cross with him and him with you?

- 0. $< \frac{1}{12}$
- 1. $\frac{1}{7} - \frac{1}{12}$
- 2. $\frac{1}{7} - 4$
- 3. 5 - 7
- 4. $> \frac{7}{7}$

(b) What would it usually be about:-

your irritability _____

his irritability _____

2. QUARRELS

(a) Most families have arguments from time to time, apart from the sort of (irritability) we've been talking about, how often would you and you husband have arguments?

- 0. $< \frac{1}{12}$
- 1. $\frac{1}{7} - \frac{1}{12}$
- 2. $< \frac{1}{7} - \frac{4}{7}$
- 3. 5 - $\frac{7}{7}$
- 4. $> \frac{7}{7}$

(b) Quarrels involve/involve at extreme

usually extre

- 1. Denigration of each other and/or
- 2. Denigration fo each other's families and/or
- 3. Shouting and/or
- 4. Violence and/or
- 5. Threats to leave
- 6. Not speaking after any difference for a number of hours
- 7. Not speaking for a number of days
- 8. No. of nights sep. through strain (number?)
- 9. Actual separation for some time

3. IF MARRIED

Your are married now for _____ years.

(a) some married couples share a lot and some very few interests and activities in common. How much of your interests and activities do you and your husband have in common? (rate level 0-3)

Level

- 0. none
- 1. a few
- 2. a lot
- 3. all

- (b) Generally speaking, how satisfied or otherwise are you with your sharing of interests and activities? (rate satisfaction 1-5)
- 4. (a) How much of the responsibility and decision making for your family is shared by you and your husband? (rate level 0-3)
- (b) Generally speaking, how satisfied are you with the level of sharing of responsibilities and decision making in your marriage? (rate satisfaction 1-5)
- 5. Generally speaking, would you say that you get on well together (rate satisfaction 1-5)

Satisfaction

- 1. very dissatisfied
- 2. dissatisfied
- 3. neither
- 4. satisfied
- 5. very satisfied

- 6. Generally speaking, how satisfied are you with the physical/sexual aspect of your marriage? (rate Satisfaction 1-5)

OVERALL MARITAL SATISFACTION

IF SINGLE

- 3. Do you have a steady relationship with someone? _____
- 4. (a) IF YES - How long have you had this relationship? _____
How satisfied are you with this relationship?

 - 1. Very dissatisfied
 - 2. Dissatisfied
 - 3. Neither
 - 4. Satisfied
 - 5. Very satisfied

- 4. (b) IF NO - Would you like to have a steady relationship with someone? _____
Reasons _____

- 5. Have you been out with a member of the opposite sex in the past 3 months? _____
If NO, would you like to? _____
- 6. In all, are you happy about this aspect of your life at present?
(rate very dissatisfied - very satisfied) (1-5)

CONFIDING RELATIONSHIPS

7. (a) In general, how well are you able to confide in your husband/boyfriend, i.e. how able are you to talk about your feelings, worries and so on?
- 0. not able at all
 - 1. only slightly/occasionally able
 - 2. moderately able
 - 3. very able
 - 4. talk through everything
- (b) IF no husband/boyfriend or not able, is there anyone you can confide in? _____
- 0. no
 - 1. yes
 - 2. NA

G. HOME WORK/HELP

If I could return again to talk about your child, the work you do and the help you get at home.

1. Child's Diet (on a typical day)

(a) Milk type(s)

- 1. breast milk
- 2. commercial formula milk
- 3. evaporated milk
- 4. cow's milk

(b) Other foods - (on a typical day)

		SERVING
Milk products	Milk	
	Cheese	
	Ice Cream	<input type="checkbox"/>
Meat	Meat	
	Eggs	
	Beans	
	Liver	
	Meat mixtures.....	<input type="checkbox"/>
Vegetables & Fruit	Dark green veg.	
	Potatoes	<input type="checkbox"/>
	other veg.....	<input type="checkbox"/>
	Citrus & other fruits.....	<input type="checkbox"/>
Breads & Cereals	Bread	
	Cereal	
	Pasta.....	<input type="checkbox"/>
Fats, oil	Butter, margarine	
	Bacon	
	Gravy	
	Lunch meats	
	Potato chips	
	Crips.....	<input type="checkbox"/>

4. How satisfied are you with the level of help you receive from others for various tasks -

- | | | |
|------------------------------------|--------------------------|----------------------|
| housework | <input type="checkbox"/> | 1. very dissatisfied |
| shopping | <input type="checkbox"/> | 2. dissatisfied |
| child minding : daytime | <input type="checkbox"/> | 3. neither |
| babysitting in the evening | <input type="checkbox"/> | 4. satisfied |
| putting children to bed | <input type="checkbox"/> | 5. very satisfied |
| child care (ie. feeding, clothing) | <input type="checkbox"/> | |

(..... if not satisfied, query major source of dissatisfaction)

5. FAMILY ENVIRONMENT

For the following pairs of statements, can you tell me which one is the better description of your family _____ (tick appropriate statement)

1. There is a feeling of togetherness in our family _____
 There is very little group spirit in our family _____
2. Family members often keep their feelings to themselves _____
 Family members tell each other about their personal problems _____
3. We fight a lot in our family _____
 Family members hardly ever lose their tempers _____
4. In our family, we are strongly encouraged to be independent _____
 We don't do things on our own very often in our family _____
5. In our family, we don't try that hard to succeed _____
 Getting ahead is very important in our family _____
6. Learning about new and different things is very important in our family _____
 We are not that interested in cultural activities _____
7. Family members are not very involved in recreational activities outside work or school _____
 Family members go out a lot _____
8. Family members have strict ideas about what is right and wrong _____
 In our family each person has different ideas about what is right and wrong _____
9. We are generally very neat and orderly _____
 It is often hard to find things when you need them in our household _____
10. We can do whatever we want in our family _____
 You can't get away with much in our family _____

OVERALL FAMILY ENVIRONMENT

H/HOUSING

1. Nature of Occupancy

- | | |
|-------------------------------------|---|
| Flat - rented from Local Authority | 1 |
| rented other than Local Authority | 2 |
| House - rented from Local Authority | 3 |
| rented other than Local Authority | 4 |
| being acquired from Local Authority | 5 |
| under a purchase scheme | 6 |
| owner occupied (mortgaged/loan) | 7 |
| " (no money being paid) | 8 |
| Other - (explain _____) | 9 |
| e.g. mobile home | |

2. How long have you lived here (years)

3. Does the household have sole use of, share with another household, or lack any of the following amenities?

- | | | |
|---------------------------------|----------------------|---------------|
| (a) Bathroom | <input type="text"/> | 0. no |
| (b) Indoor lavatory | <input type="text"/> | 1. shared use |
| (c) Outdoor lavatory | | |
| | | 2. sole use |
| (d) Hot water supply | <input type="text"/> | |
| (e) Garden or yard | <input type="text"/> | |
| (f) Kitchen (<i>separate</i>) | <input type="text"/> | |

4. How many rooms are there within the accommodation? Include all rooms except kitchen, bathroom, toilet and any rooms used solely for business purposes.

Number of rooms

" of bedrooms

5. Which of the following does the family have?

- | | | |
|--------------------------|----------------------|--------|
| (a) Refrigerator | <input type="text"/> | |
| (b) Washing machine | <input type="text"/> | 0. no |
| (c) Spin dryer | <input type="text"/> | 1. yes |
| (d) Colour T.V. | <input type="text"/> | |
| (e) Black and white T.V. | | |
| (f) Telephone | <input type="text"/> | |
| (g) Car (or use of) | <input type="text"/> | |

6. What facilities do you have for heating water? AVAILABLE
- | | | |
|------------------------------|--------------------------|--|
| Gas geyser | <input type="checkbox"/> | |
| Electric geyser | <input type="checkbox"/> | |
| Electric immersion | <input type="checkbox"/> | |
| Back boiler | <input type="checkbox"/> | |
| Central heating system | <input type="checkbox"/> | |
| Kettle (only) | <input type="checkbox"/> | |
| Other | <input type="checkbox"/> | |
| None | <input type="checkbox"/> | |
- Which do you use most frequently? (Place a tick)

7. What facilities do you have for heating your house? AVAILABLE
- | | | |
|----------------------------------|--------------------------|--|
| Central heating system | <input type="checkbox"/> | |
| Back boiler with radiators | <input type="checkbox"/> | |
| Coal fire | <input type="checkbox"/> | |
| Town gas fires | <input type="checkbox"/> | |
| Electric heaters | <input type="checkbox"/> | |
| Bottle gas | <input type="checkbox"/> | |
| Paraffin/Oil Fires | <input type="checkbox"/> | |
| Other | <input type="checkbox"/> | |
| None | <input type="checkbox"/> | |

8. To what extent are any of the following a problem in your house?
- | | | |
|--------------------------|--------------------------|---------------|
| Draughts | <input type="checkbox"/> | |
| Dampness | <input type="checkbox"/> | 1. Major |
| Leaks | <input type="checkbox"/> | 2. Moderate |
| Structural defects | <input type="checkbox"/> | 3. Slight |
| Plumbing | <input type="checkbox"/> | 4. No problem |
| Foul smells | <input type="checkbox"/> | |
| Vermin | <input type="checkbox"/> | |
| Noise from outside | <input type="checkbox"/> | |

9. At present are there any major repairs needed on the house?
- | | | |
|-----------|--------------------------|--|
| No | <input type="checkbox"/> | |
| Yes | <input type="checkbox"/> | |

10. Which descriptions do you feel best characterise your home?

- | (a) Furniture/equipment in home | (b) Tidiness of home |
|--|---|
| Luxurious1 | Over tidy1 |
| Well equipped2 | Very tidy2 |
| Adequate3 <input type="checkbox"/> | Average3 <input type="checkbox"/> |
| Low standard4 | Untidy4 |
| Very low standard5 | Chronic5 |
| Can't assess6 | Can't assess6 |

11. Overall how satisfied (happy) are you with your present living conditions

1. Very unhappy
2. unhappy
3. neutral
4. happy
5. Very happy

12. Please rate your present satisfaction with the following aspects of neighbourhood. (unhappy to happy)

- 1) Closeness to work for members of the household
- 2) Closeness to shops
- 3) Your neighbours
- 4) Closeness to schools
- 5) Closeness to health services
- 6) Privacy
- 7) Closeness to your family
- 8) Closeness to your friends
- 9) Space for children
- 10) Bus service
- 11) Vandalism
- 12) Crime against the person
- 13) Recreational/Entertainment facilities
- 14) Air quality
- 15) Noise levels

13. Which description best characterises your relationship with your neighbours.

- (c) Relationship of family with neighbours
- Very good terms1
 - Good terms2
 - Satisfactory3
 - Don't mix4
 - Bad terms5
 - Can't assess6

I/FAMILY OCCUPATION & INCOME

Husbands Employment

- 1. Husband's job
- 2. Length/present job (years)
- 3. Shift Pattern
 - 0. No work
 - 1. Days
 - 2. Rotating including nights
 - 3. Permanent nights
 - 4. Other (_____)
- 4. Unemployment: Past 3 years
 - 0. No unemployment
 - 1. 1 year or less unemployment
 - 2. 1 - 2 years
 - 3. 1 - 3 years
 - 4. More than 3 years unemployment

Wife's Employment

- 5. Wife's job
- 6. Length present job (years)
- 7. Shift Pattern
 - 0. No work
 - 1. Part time, early shifts
 - 2. Part time, late shifts
 - 3. Full time
 - 4. 1 and 2
 - 5. Night work
- 8. Please ask the mother if she could say what are the main reasons she works.
 (If for money ask, what is money mainly spent on?)
 Financial necessity (e.g. contribution to housekeeping or rent, clothes, etc.)1
 Financial advantage (e.g. savings, holidays, household appliances, luxuries, car, to gain independence etc.)2
 Social reasons (e.g. for company, making friends, relief of boredom, keep you young, etc.)3
 Career/enjoys the work4
 Other reasons, describe5

 If more than one reason given, note which of these is the most important reason

9. Enjoyment of Work

- 0. Not working, no interest
- 1. Not working would like to do so
- 2. Working, dislike of job
- 3. Working, neutral attitude, something to do
- 4. Working, enjoys on the whole
- 5. Working, active enjoyment and involvement

10. a) Has mother had a regular full-time or part-time job out of the home since the time of N's birth which she subsequently gave up? (if not working)

Yes

Full-time job(s)0

Part-time job(s)1

No, never had a job out of the home since N's birth2

Other reply, give details3

.....4

Not known5

10. b) If so, why? _____

11. a) Who looks after N during mother's working hours? (if working)

- 1. N's father
- 2. Mother at home
- 3. Accompanies mother to work
- 4. Adult relative e.g. grandparnets, aunt, etc.
- 5. Older sibling
- 6. Paid childminder
- 7. Friend or neighbour (not paid)
- 8. Local authority day nursery
- 9. Day nursery run by an employer or private individual(s)
- 10. School, nursery school or class or playgroup
- 11. Some other person or place, namely
- 12. Not known

b) If more than one, who mainly looks after N during mother's working hours?

.....

12. Family Income

Can you manage on the money you have coming in?

- 1. Major problems
- 2. With some effort
- 3. Just about
- 4. Well enough
- 5. Very well

J/LEISURE ACTIVITIES

1. How often do you go out to eat, drink or to see a film? Would you say once a week or more, 2 - 3 times a month, a few times a year, or rarely, if ever?

- (3) once a week or more eating
- (2) 2 - 3 times a month drinking
- (1) a few times a year seeing a film
- (0) rarely, if ever

2. One way in which some people spend their time is in clubs and organizations. Do you belong to any social clubs or organizations?

- (0) No
 - (1) Yes
- (Name them) _____

3. About how often do you usually attend religious services. Would you say, once a week or more, 2 - 3 times a month, once a month, a few times a year, or never?

- (4) once a week or more
- (3) 2 - 3 times a month
- (2) once a month
- (1) a few times a year, or less
- (0) Never

4. How often do you get together informally with relatives or friends? Would you say once a week or more, 2 - 3 times a month, a few times a year, or rarely, if ever?

- (3) once a week or more
- (2) 2 - 3 times a month
- (1) a few times a year
- (0) rarely, if ever

5. Of these social occasions, which ones (if any) do you attend with your husband? 0. NONE/NEVER 1. SOMETIMES 2. OFTEN 3. ALWAYS

(RECORD VALUE ALONGSIDE EACH ACTIVITY ENGAGED IN)

- 6. Total social life
- 7. Total shared social life

8. On the average, about how much do you watch TV? More than 2 hours a day, less than 2 hours a day, but daily, a few times a week, a few times a month, or rarely?

- (4) more than 2 hours a day
- (3) less than 2 hours, but daily
- (2) a few times a week
- (1) a few times a month
- (0) rarely/never

9. Do you read any newspapers?

- 0. never/rarely
- 1. weekly
- 2. most days
- 3. daily

10. a) Apart from those living with you, on an average day, how many people do you see who you know just a little (e.g. to nod to, to say good morning to, etc.)

.....

- b) Is this about right for you, or do you wish you saw fewer or more of such casual contacts?
- fewer1
 - about right2
 - more3

11. a) Apart from those living with you, on an average day, how many people do you see whom you know casually (e.g. have a short chat with)?

.....

- b) Is this about right for you, or do you wish you saw fewer or more of such casual friends?
- fewer1
 - about right2
 - more3

12. a) Apart from those living with you, and your relatives, on an average week how many people do you see whom you consider to be good or close friends (e.g. those whom you could call on without being expected and be sure of a welcome, or vice versa)?

.....

- b) Is this about right for you, or do you wish you could see them more or less often?
- less1
 - about right2
 - more3

13. a) How many of these (i.e. your good or close friends) are near enough physically so you can see them whenever you wish?

.....

a) Apart from those living with you, on an average week how many close relatives do you see?

.....

- b) Is this about right for you, or do you wish you could see them more or less often?
- less1
 - about right2
 - more3

Parents' Family of OriginYour own family

16. a) Parents still alive?

mother father

0. No

1. Yes

b) Husbands parents?

mother father 17. a) What is/was your relationship
with your mother/father like?mother father

0. None

1. cool/reserved

2. average

3. very close

4. no contact

b) your husband and his parents?

mother father 18. a) How would you describe your
parent's marriage?

1. separation/breakdown

2. poor

3. average

4. good

5. very good

* Q15 (from previous page) If something worrying or upsetting happens to you in your day, have you got someone you can talk to about it?

Who is this person? _____

K/FAMILY HEALTH

1. Are you or your family currently (in the last year) suffering from any medical complaint or illness? (exclude Gastro-Enteritis episode)

If Yes describe:-

	Family Member	Problem	Duration	Level	What (if) Treatment
1					
2					
3					
4					
5					
6					
7					
8					

- any other problems generally related to health in you/your family?
(e.g. 'nerves', alcohol, bed-wetting)

1				
2				
3				

Type of Medical Care Cover

1. Medical Card
2. Hospital Card
3. V.H.I.

3. How often have you or your family used each of the following medications during the past week? (excluding gastro-enteritis medication)

	<u>Mother</u>	<u>Father</u>	<u>other children</u>	<u>index child</u>	
(1) Aspirin or other headache medications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0. Never
(2) Aids for stomache or digestion problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. < 1 weekly
(3) Laxatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. 1-2 x weekly
(4) Cough, cold or sinus medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. 3-4 x weekly
(5) Medication to pep you up or keep you going	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. Daily
(6) Medication to calm you down (tranquillizers)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9. NA
(7) Antibiotics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(8) Medication for blood pressure or heart problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(9) Vitamins, toxics or other dietary suppliments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(10) Other prescription medicines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
(11) Other non-prescribed medicines or drugs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

4. In relation to medication, are you currently using any medical/nonmedical form of family planning? (indicate which form(s))

- | | |
|------------------------------|---|
| 1. Pill | 7. Rhythmn or safe period - Calendar |
| 2. Douche | 8. Rhythmn or safe period - Calendar |
| 3. Jelly, Cream, Suppository | 9. Not having intercourse to avoid pregnancy - abstinence |
| 4. IUD, Coil, Loop | 10. Withdrawal, coltus interruptus |
| 5. Condom, Rubber | 11. Operation; sterilization - wife |
| 6. Diaphragm | 12. Operation; sterilization - husband |
| | 13. Abortion |
| | 14. Other |

5. Birth History of Children

- details on all liveborn and stillborn children of mother

Name of child	Sex	Age	Birthweight	Gestation	ICU	Survival

<u>Weight</u>	<u>Gestation</u>	<u>ICU</u>	<u>Survival</u>
1. 5lb 8oz	1. 37 weeks	0. No	0. Stillborn
2. 5lb 8oz	2. 37	1. Yes	1. live 7 days 2. died 7 days 3. alive

6. Medical Advice

In the past year has the doctor advised you or your husband to do any of the following:-

		<u>Advice Given</u>		<u>Advice Followed</u>	
		Mother	Father	Mother	Father
1. Get more rest or sleep		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Get more exercise	0. No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Lose weight	1. Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Cut down smoking	9. NA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Cut down drinking		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Cut down the amount of work you do		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Other _____		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. In the past year has the doctor advised you in any way regarding any of your children?

Advice given (in what context?) Advice followed?

8. Health Behaviours

Could you list some activities you engage in that are good for your health?

Yourself

Husband

9. Could you list some activities you engage in that are bad for your health?

	YOURSELF		HUSBAND

10. How often do you/your husband engage in physically active sports or past-times (e.g. brisk walking, jogging, cycling, etc.) for the benefit of your health?

- 5. Nearly every day
- 4. Once a week Mother
- 3. Once a fortnight Father
- 2. Once a month
- 1. Less than once a month
- 0. Never

11. On an average day, how many cigarettes do you/your husband smoke?

- | | | |
|---------------------------------|--------------|------------|
| Mother <input type="checkbox"/> | 0. None | 3. 21 - 40 |
| Father <input type="checkbox"/> | 1. \leq 10 | 4. 41 - 60 |
| | 2. 11 - 20 | 5. 60 + |

12. During an average week how many days do you/your husband drink alcoholic beverages?

Mother

Father

On those days that your do drink, about how many of each of the following do you usually drink?

	<u>Mother</u>	<u>Father</u>
1. Pints of beer/lager/stout	_____	_____
2. Half measures of spirits	_____	_____
3. Glasses of wine	_____	_____

OVERALL FAMILY HEALTH

13. Compared to other people would you say you and your family's health is:

- | | | |
|--------------|---------|--------------------------|
| 4. Excellent | 2. Fair | <input type="checkbox"/> |
| 3. Good | 1. Poor | |

14. In general how satisfied are you with your family's overall physical condition ?

- 4. very satisfied
- 3. somewhat satisfied
- 2. not too satisfied
- 1. not at all satisfied

15. How much control do you think you have over your family's future health?
- 3. a great deal
 - 2. some
 - 1. very little
 - 0. none at all

HEALTH INFORMATION (GENERAL)

16. Do you think one person can catch these diseases from another?
- (a) Influenza
 - (b) Diabetes
 - (c) Allergies
 - (d) Measles
0. No
1. Yes

17. Propensity to seek help (self)

People go to see a doctor for different reasons. I'm going to describe a few symptoms and ask you whether or not you would consult a doctor if you had each of these problems.

- (a) A temperature of 103° for two days
 - (b) A repeated sharp pain in your chest
 - (c) Severe cough and sore throat
 - (d) "Nerves"
 - (e) Frequent insomnia (sleeplessness)
 - (f) Unexplained weight loss
 - (g) Allergy
 - (h) Blood in your stools
 - (i) General fatigue (always tired)
0. No
1. Yes

18. Preventative Care

Do you think it very important, somewhat important or not important to visit the doctor for regular checkups even when:-

- you
 - your child are feeling well?
0. Not
1. Somewhat
2. Very

19. Propensity to seek help (child)

I'll read a list of symptoms children sometimes have. For each one please tell me whether or not you would consult a doctor if your child had the symptom.

- (a) First, would you consult a doctor if the child seemed to be feeling poorly for several days and had a temperature of about 102?
 - (b) seemed to have unexplained muscular aches and pains?
 - (c) complained of a sore throat for three days but had no temperature?
 - (d) the child had a earache?
0. No
1. Yes

MEDICAL ATTITUDES

20. Do you agree or disagree with the following statements?

- (a) I have great faith in doctors
- (b) As long as you feel all right, there is no reason to go to a doctor
- (c) In general, I think doctors do a good job
- (d) There is much a person can do to keep from becoming sick
- (e) In general, I think most doctors are overrated 0. Disagree
- (f) If a person works at it he can stay in good health 1. Agree
- (g) When there are colds going around, I am sure to get no matter how much I try to avoid it
- (h) I would rather not go to a doctor unless I have to
- (i) Even if a person is not sick, he should see a doctor at least once a year for a routine checkup
- (j) If you are going to ge sick, you are going to get sick; no use worrying about it

21. Preventative care rating (questions 18, 20 b,h,i)

PHYCHOLOGICAL HEALTH

22. Depression

(a) Have you/your husband been depressed or miserable at all during the last 3 months? (been tearful, felt that you weren't up to talking with people- that you just wanted to be alone - felt less enjoyment or interest in things e.g. sex, hobbies?)

How depressed?

- 0. not at all
- 1. a little depressed
- 2. quite depressed
- 3. very depressed
- 9. NA

MOTHER FATHER

(b) <u>Sources of Depression</u>	<u>MOTHER</u>	<u>FATHER</u>	<u>Score</u>
State of marriage	<input type="checkbox"/> 1	<input type="checkbox"/>	
Housing problems	<input type="checkbox"/> 2	<input type="checkbox"/>	0. Absent
Money problems	<input type="checkbox"/> 3	<input type="checkbox"/>	1. Present
Family of origin	<input type="checkbox"/> 4	<input type="checkbox"/>	
Neighbours	<input type="checkbox"/> 5	<input type="checkbox"/>	
Problems with child	<input type="checkbox"/> 6	<input type="checkbox"/>	
Friendships	<input type="checkbox"/> 7	<input type="checkbox"/>	
Others (specify)	<input type="checkbox"/> 8	<input type="checkbox"/>	
NA	<input type="checkbox"/> 9	<input type="checkbox"/>	

23. Anxieties, Worries

- a) Have you been worried or anxious at all during the past 3 months?
(Do you ever lie awake worrying? - Would you say you are a highly strung or nervous person?)

How Anxious?

0. not at all

1. a little anxious

2. quite anxious

3. very anxious

OVERALL ANXIETY

mother

father

b) Sources of Anxiety/Worry

MOTHER

FATHER

State of marriage

Housing problems

Money problems

Family of origin

Neighbours

Child problems

Friendships

Others

0. Absent

1. Present

HYPOCHONDRIASIS

- 24. a) Have you/your husband noticed anything else wrong with your/his health apart from the things that you've already told me?

Do you worry about your health at all (how much?)

0. not at all

1. a little

2. quite worried

3. very worried

mother

father

- b) Have you/husband worried that you/he might have a physical disease such as heart disease or cancer (how much?)

0. No

1. a little

2. quite worried

3. very worried

mother

father

c) IF YES

What disease(s)? (mother) _____

(father) _____

Why? (mother) _____

(father) _____

- d) How often do you have these worries (or thoughts)? (mother) _____

(father) _____

e) Has it interfered with your/his life?

work/concentration - mother _____
father _____

seeing people/
socializing - mother _____
father _____

other - _____

f) What, if anything, have you/he done about it? _____

g) Hypochondriasis

0. none

1. a little hypochondriacal mother

2. quite hypochondriacal father

3. very hypochondriacal

25. General Health of Mother

I would like to ask you a few more specific question about your own general health in the past few months:-

Have you recently

1 - been able to concentrate on whatever you're doing?	better than usual	same as usual	less than usual	much less than usual
2 - lost much sleep over worry?	not at all	no more than usual	rather more than usual	much more than usual
3 - been having restless, disturbed nights?	not at all	no more than usual	rather more than usual	much more than usual
4 - been managing to keep yourself busy and occupied?	more so than usual	same as usual	rather less than usual	much less than usual
5 - been getting out of the house as much as usual?	more so than usual	same as usual	less than usual	much less than usual
6 - been managing as well as most people would in your shoes?	more so than usual	same as usual	rather less than usual	much less than usual
7 - been feeling on the whole you were doing things well?	better than usual	about the same	less well than usual	much less well
8 - been satisfied with the way you've carried out your task?	better than usual	about as usual	less well than usual	much less well
9 - been able to feel warmth and affection for those near to you	better than usual	about same as usual	less well than usual	much less well
10 - been finding it easy to get on with other people?	better than usual	about same as usual	less well than usual	much less well
11 - spent much time chatting with people?	not at all	no more than usual	rather more than usual	much more than usual
12 - felt that you are playing a useful part in things	more so than usual	same as usual	less useful than usual	much less useful
13 - felt capable fo making decisions about things?	more so than usual	same as usual	less useful than usual	much less useful
14 - felt constantly under strain	not at all	no more than usual	rather more than usual	much more than usual
15 - felt that you couldn't overcome your difficulties	not at all	no more than usual	rather more than usual	much more than usual
16 - been finding life a struggle all the time?	not at all	no more than usual	rather more than usual	much more than usual
17 - been able to enjoy your normal day-to-day activities?	more so than usual	same as usual	less so than usual	much less than usual
18 - been taking things hard?	not at all	no more than usual	rather more than usual	much more than usual
19 - been getting scared or panicky for no good reason?	not at all	no more than usual	rather more than usual	much more than usual

20 -	been able to face up to your problems?	more so than usual	same as usual	less able than usual	much less able
21 -	found everything getting on top of you?	not at all	no more than usual	rather more than usual	much more than usual
22 -	been feeling unhappy and depressed?	not at all	no more than usual	rather more than usual	much more than usual
23 -	been losing confidence in yourself?	not at all	no more than usual	rather more than usual	much more than usual
24 -	been thinking of yourself as a worthless person?	not at all	no more than usual	rather more than usual	much more than usual
25 -	felt that life is entirely hopeless?	not at all	no more than usual	rather more than usual	much more than usual
26 -	been feeling hopeful about your own future?	more so than usual	about same as usual	less so than usual	much less hopeful
27 -	been feeling reasonably happy, all things considered	more so than usual	about same as usual	less so than usual	much less than usual
28 -	been feeling nervous and strung-up all the time?	not at all	no more than usual	rather more than usual	much more than usual
29 -	felt that life isn't worth living?	not at all	no more than usual	rather more than usual	much more than usual
30 -	found at times you couldn't do anything because your nerves were too bad?	not at all	no more than usual	rather more than usual	much more than usual

APPENDIX 4

LEAFLETS ON GASTROENTERITIS MANAGEMENT

Vomiting and Diarrhoea in Children

Gastroenteritis is usually caused by a virus, picked up either from food or direct contact. Drugs which are effective in adults are dangerous to children, and antibiotics are only needed in small numbers of cases. Antibiotics usually worsen the condition.

Treatment:- As the illness usually settles in 1 - 2 days, treatment is designed to ensure the child does not become dehydrated, and that the inflamed bowel is rested. Most food products will prolong the illness.

Children with gastroenteritis should be put on clear fluids only for 24 hours at least. Water which has been boiled, or flat white lemonade (or flat 7up) is best used. Small amounts of sugar can be added to the boiling water.

As the condition settles, food is re-introduced gradually, starting with dry toast and arrowroot biscuits, add milk and eggs last.

If the condition persists, a revisit to the doctor is necessary to check for dehydration, or to arrange for tests to find out other causes.

Kaolin is a safe non-prescription suspension which can be given to help stop the diarrhoea.

Prolonged illness, or prolonged irritability, or weight loss should be reported to the doctor.

* Thank you to Drs. T. Feeny and A. Varadkar for copies of their leaflets.

(b) -

GUIDE LINES IN THE MANAGEMENT OF GASTRO-
ENTERITIS.

Diarrhoea and vomiting is common and mostly caused by viruses and bacteria for which antibiotics are not normally needed.

Diarrhoea and vomiting can cause dehydration. See your doctor for advice.

THE FOLLOWING MEASURES CAN BE TAKEN AT HOME TO PREVENT DEHYDRATION.

1. Stop milk and milk products for 48hrs.
 2. Stop all solids for 24 - 48 hours.
 3. Give only Glucose and water. (4 teaspoons to a pint of boiled water and leave to cool.)
 4. Dioralyte or Repolyte or Rehidrat. two sachets dissolved in a pint of water.
- SUGGESTION FOR OLDER CHILDREN.- Could use flat boiled 7 up. In addition to Glucose and water.

If diarrhoea should continue beyond 48 hrs. DO NOT give milk. Instead use **COW&GATE FORMULA S.** or **MILUPA HN 25.** as directed by your doctor.

Note whether your child is passing adequate URINE or not. If not report to your doctor.

These are only guide lines, so if in doubt consult your doctor.

WHAT TO DO FOR A "GASTRO"

Tel. _____

1. Stop all milk and solid food for twenty four to forty eight hours.
2. Give your child frequent drinks. Allow him to satisfy his thirst.
Give (A) Tap water, boiled and cooled.
(B) Soft Drinks, allowed to go flat.
3. Be careful about hygiene - hand washing, nappy disposal.
4. If he/she refuses to drink, continues to vomit, or has bad diarrhoea, Seek Medical help.
5. If his eyes are sunken, mouth dry, or he/she is drowsy, Seek Medical help AT ONCE.

Casualty
Department B
leaflet :-

TREATING DIARRHOEA IN INFANTS



Diarrhoea is usually caused by infection in the intestines. The correct treatment is to replace body fluids lost in the diarrhoeal stools and to stop giving food and artificial or cows milk for a short time, gradually returning to the normal diet as the diarrhoea lessens. Dioralyte is a balanced mix of glucose and essential body salts specially designed to quickly replace lost fluid and hasten recovery. The following treatment guide will be effective for most cases.

Preparing Dioralyte

1	2	3
Use fresh drinking water	Boil water	Allow to cool
4	5	6
Empty the contents of one sachet of Dioralyte.	Add 200ml. (7 fl.oz.) of water.	Shake or stir to mix well

It is important to prepare Dioralyte correctly with the right amount of water. Do not boil Dioralyte solution or make stronger.

Guide to how much Dioralyte to give

		INFANTS AGE			
		0-2 months	3-4 months	5-6 months	6 mths - 2 years
DAY 1	No. of sachets during 1st 24 hrs	3	5	7	7-10
	Diet	No milk or solids			
DAY 2	No. of sachets during 2nd 24 hrs	2	3	4	4-5
	Diet	Half usual quantities of milk or light solids (cereals, toast etc.)			
DAY 3	No. of sachets during 3rd 24 hrs	1	2	3	3-4
	Diet	Gradual return to full quantities of milk or solids			

Give Dioralyte solution in the same way (i.e. similar quantities and frequency) as usual milk feeds or drinks.

- If nausea or vomiting are present Dioralyte solution should be given in small quantities at first (e.g. one teaspoonful every 5-10 minutes) i.e. "little and often."
- If in doubt, give more Dioralyte solution rather than less. Always try to make sure your baby drinks at least the recommended amount of Dioralyte solution each day.
- Any Dioralyte solution unused after one hour should be thrown away unless kept in a refrigerator when it may be used for up to 24 hours.
- If breast feeding, give the recommended amount of Dioralyte solution and then breast feed until the baby is satisfied.

(iii)

If the baby's condition worsens, or if the diarrhoea has not stopped within 2 days, consult your doctor.

Proprietary oral rehydration solutions

(a)

How to use Rapolyte

- **Day One:**
Avoid all milk and food.

USE RAPOLYTE ONLY

Quantity:

- **Day:**

2	3	4	5

Quantity:
(sachets)

Introduce Milk and Feed Gradually.

It is often best, particularly if there is vomiting, to give Rapolyte in small frequent sips.

Persistent refusal of Rapolyte is often a sign that the baby is getting better.

If symptoms persist, consult your doctor again.

(b)

Patient's Instruction Leaflet

Make up solution as described below.
Do not reboil solution once it is made up.
Only use **WATER** in making up Rapolyte Formula.

1 Boil fresh tap water

2 Allow to cool

3 Empty the contents of one sachet of Rapolyte.

4 Add 200ml. (7 fl.oz.) of water

5 Shake bottle well or stir to mix.

6 Shake bottle well or stir to mix.

N.B. Please see over for amount of solution to be given to children.

"Older Children and Adults".
Empty contents of one Rapolyte sachet into a glass. Add 200ml. (7 fl. oz.) of water and stir well.
Take mixture ad lib every 4 to 6 hours.