

Part II

A Study of
Hearing-impaired
Children

8 The hearing-impaired child of primary school age: background factors, maternal attitudes and maternal personality

Introduction

Children with impaired hearing constitute a major group suffering from varying degrees of speech retardation. From a clinical point of view this is a clearly defined and easily identified group. It was therefore decided to broaden the research exercise by making a special study of a group of hearing-impaired children. As the prevalence of clinical deafness is under two per 1000 (Reed, 1970; Schein and Delk, 1974), it was immediately clear that Newcastle city alone was not going to provide a sample of deaf children which would be large enough to be statistically viable. In order to gather sufficient numbers we decided to accept all hearing-impaired children available, covering a slightly wider age range than we used in our parallel study of children with speech delay, and also casting the net over the whole of Tyneside rather than just the city of Newcastle upon Tyne. It must be emphasized that this group of hearing-impaired children is representative of cases known to services for deaf children in this area. As such services have been centralized we consider our group to be reasonably representative of the population of deaf children in this area, and certainly no less so than other major studies which claim to be epidemiological in nature (Freeman *et al.*, 1975).

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Subjects and classification

In collaboration with a consultant paediatric otologist who provides a regional service* for deaf children on Tyneside, and also the organizers of the educational services for deaf children, a total of 59 hearing-impaired children were identified.

The hearing-impaired population consists of numerous subgroups which have to be delineated in order that interpretation of data may be valid. As with the speech retarded group, diagnostic assessments were undertaken in order to identify that group of children who could be considered as pathological deviants. These were fewer than anticipated and consisted of one severely subnormal child, three brain-damaged or spastic children and one child with a cleft palate. These five pathological subjects were not included in the statistical analyses. The mean age of the hearing-impaired sample at first assessment was eight years four months with a standard deviation of 10.9 months. We studied children with a much narrower age range, seven to ten years, than reported by Freeman *et al.* (1975) who included children from five to 15 years of age; our findings, therefore, are less likely to be bedevilled by variations due to age. The mean age at the second assessment was nine years four months with a standard deviation of 11.3 months. About 41% of the group were girls, 59% boys. This sex ratio is similar to that described by Freeman *et al.* (1975). Our cases can be included in the category of 'prelingual deafness' as the deafness almost always had an onset before the age of three years.

The 54 hearing-impaired subjects were divided into two groups:

- (a) A 'profoundly deaf' group of 33 children attending the Regional School for the Deaf.
- (b) A 'partially hearing' group of 21 attending various partially hearing units attached to ordinary schools in the immediate area.

The two major educational settings in which deaf children in the United Kingdom are placed are residential schools (usually on a weekly boarding basis) or day units within ordinary schools. The former have tended to cater for profoundly deaf children and the latter for partially hearing children. However, we have found that, in the north-east, the factors determining whether a child attends a unit for the partially hearing or a school for the profoundly deaf are numerous and are not based simply on extent of hearing loss. For instance, in marginal cases child behaviour, educational attainments and parental circumstances are obviously determining factors. Moreover, there is apparently no clear cut-off point of audiometric measurement which might determine the school to which a child should be admitted. It was unusual for a child to

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be transferred from one school to another. A definition of deafness and audiometric data are provided in Chapter 10.

The 102 controls used in the study of speech retarded children were again used as controls for our deaf study. They were, therefore, no longer matched, paired controls but, apart from the fact that the hearing-impaired sample was significantly older, the background data suggest that they were suitable for these purposes. We were also able to compare the Residual Speech Retarded Group with the hearing-impaired group. The age difference between the hearing-impaired, the speech retarded and the controls does not affect the majority of the comparisons between them because the bulk of the tests which were administered are corrected for age and hence allow comparisons in spite of age differences.

This study is unique for two reasons. First, it is comprehensive in that it covers social, psychiatric and psychological data. Second, it has a comparison group. Several other surveys of hearing-impaired children have been undertaken by Myklebust (1964); Rodda (1970); Meadow and Schlesinger (1971) and Freeman *et al* (1975). Comprehensive reviews of such work have been undertaken by Myklebust (1964), Fisher (1965) and Meadow (1975). However, most of these studies have concentrated either on hearing-impaired samples of different age groups or they had inadequate control or comparison groups. The present study deals with many areas which have not previously been covered.

Aim

The aim of the present study is to obtain a clear and comprehensive picture of the total psychosocial situation, problems, resources and assets of the hearing-impaired child of primary school age in comparison to that of a child with normal hearing.

Method

As far as we can ascertain few cases escaped our net and all families proved at least partially co-operative. In all cases psychological testing of the children proved possible although only an abbreviated battery of psychological tests could be administered to some of the hearing-impaired children. For instance, only non-verbal tests could be administered to the profoundly deaf children and thus valid comparisons could be undertaken only on certain subtests.

As far as possible the same social data were collected for the hearing-impaired as for the control group. However, these data were partly retrospective in that we had to rely on case records and parental

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accounts. It became apparent that in some cases the earlier developmental and physical data on the deaf children were either not available or were not considered reliable. Fortunately, these cases proved to be few in number, and the amount of data available for statistical comparison was reduced by between 3-6% only, in different analyses in the case of the profoundly deaf, and by 5-10% for the partially hearing.

Results

1 Background factors and aetiology

The early development, physical and family experiences of the deaf children were investigated and compared with those of the other groups. The basic hypothesis was that the hearing-impaired children would have suffered more adverse life experiences. The results (Table I) show that this hypothesis is only partially supported. In fact, the main support for the hypothesis came from physical-organic data and associated factors like hospitalizations and the resulting separations from mother.

The following findings support the basic hypothesis:

- (a) When early life developmental difficulties were summated (by giving similar weightings for each adverse experience and summing them), it was found that both study groups had a significantly higher mean developmental difficulty score than the control group. More specifically, the early sucking and swallowing of the partially hearing and profoundly deaf children proved to be significantly poorer than that of the controls, while the partially hearing had significantly more difficulty in taking solids than did the controls. The profoundly deaf group also walked significantly later than their hearing counterparts.
- (b) The two study groups had many more hospitalizations and the profoundly deaf group had significantly more separation experiences from their mothers than the control group over the first three years of life.
- (c) Both the study groups suffered significantly more from post-natal illnesses than their normal-hearing counterparts, and the profoundly deaf group had significantly more in the way of postnatal illness than the partially hearing group. The profoundly deaf group had a significantly higher incidence during the first five years of life of not only meningitis and measles, but also of mumps, chicken pox and whooping cough. All these illnesses, with the exception of mumps, occurred significantly more often in the first three years of life in the case of the profoundly deaf group. On the other hand, whooping

Table I Developmental, physical and associated factors—first five years of life

Feature	A = Normal hearing ^b (n = 100)	B = Partially hearing (n = 21)	C = Profoundly deaf (n = 33)	Significance
				A vs B A vs C B vs C

Table 1 Developmental, physical and associated factors—first five years of life

Feature	A = Normal hearing ^b (n = 100)	B = Partially hearing (n = 21)	C = Profoundly deaf (n = 33)	Significance	
				A vs B	A vs C
Difficulties with sucking and swallowing	5%	26%	23%	1%	1%
Difficulty in taking solids	16%	37%	31%	NS	5%
Developmental difficulties—mean score (combined category of sucking, walking, talking)	0.42	1.11	1.21	2%	1%
Breast feeding: mean number of months	1.80	1.44	0.52	NS	5%
Hospitalization in first 3 years	23%	47%	53%	5%	1%
Major separation from mother in first 3 years	9%	11%	25%	NS	2%
Measles	32%	44%	75%	5%	1%
	55%	89%	94%	1%	1%
Mumps	1%	5%	21%	—	—
	17%	10%	36%	NS	2%
Chicken pox	15%	33%	50%	NS	1%
	41%	83%	74%	1%	1%
Meningitis	Nil	5%	13%	NS	1%
	Nil	5%	13%	NS	1%
Whooping cough	1%	0%	14%	NS	1%
Mean score of postnatal infections ^a	0.77	1.56	2.5	1%	1%
Convulsions	5%	14%	18%	NS	5%

^a Group mean of sum of postnatal infections.

^b Full data only available on 100 cases.

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cough was only significantly more common in the first three years of life. None of these diseases, apart from measles, occurred significantly more frequently for the partially hearing group in the first three years, but the incidence of chicken pox during the first five years was significantly greater in this group than in their hearing counterparts. However, while the profoundly deaf group had a significant excess of epileptic fits when compared to the control group, the partially hearing group did not; there were no significant differences between the two deaf groups in relation to fits.

All these significant differences emphasize the fact that the two deaf groups had encountered excesses of adverse physical-organic experiences in their early lives, and this was particularly so in the profoundly deaf. In view of the known contribution of organic factors to deafness and hearing loss, these findings are to be expected. However, they are not entirely in agreement with what is usually described in the literature, namely, that severe congenital deafness is apparently less likely than partial deafness to be associated with specific infections or diffuse brain damage. The question therefore arises in our study of whether these excesses of physical-organic illness may lead to younger children not only acquiring a severe hearing impairment but also being more seriously affected in other areas of functioning and thus being in more need of a special school for the profoundly deaf.

The profoundly deaf had also been breast fed for significantly shorter periods than the partially hearing and normal hearing subjects. This is likely to be associated with the greater frequency of physical illness in early life in the profoundly deaf group (Freeman *et al.*, 1975).

In terms of occupational social class defined according to the Registrar General (1951), the hearing impaired had a similar distribution to the controls with only a slight excess of cases in social classes I and II. This is probably because social class I and II parents are more likely to seek treatment. Nevertheless, the lack of significant social class differences between families of hearing-impaired and control children has been reported also by Freeman *et al.* (1975) in his epidemiological survey. The other family and social data show a very different, more varied and complicated picture (Tables 18-20, Appendix 1). The deaf groups are by no means always worse off than the controls. There is not even a significantly greater incidence of serious deafness amongst the parents of the criterion groups (though audiometric assessments were not available and we relied exclusively on parental verbal reports). The evidence from the US National Census of the Deaf is that 'deaf' parents do not produce as a group significantly more deaf children although, of course, hereditary deafness will run in certain families (Rodda, personal communication). Only about 10% of deaf children have a deaf parent

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(US Office of Demographic Studies, 1973). Our deaf groups were therefore likely to be too small for significant differences to emerge.

The following paragraphs describe areas in which either or both of the deaf groups differ significantly from the control group. As will be seen, the deaf groups have advantages over the controls in many respects.

The profoundly deaf group had significantly *less* risk in the way of adverse social and environmental experiences than either the partially hearing or normal hearing groups. There was no excess of family breakdown, family size or other family factors in the criterion groups as compared to the controls. The presence of social pathology in the families of deaf children (adverse social experiences, separation, divorce, etc.) has been extensively reported in those studies using selected samples (Farber, 1960). However, this is likely to be a referral artefact as it does not emerge when epidemiological samples are used, as in this study and that described by Freeman *et al.* (1975) in North America (see Table 18, Appendix 1).

The fathers of the profoundly deaf children are seen as significantly more satisfactory breadwinners than the fathers of the controls. A significantly higher percentage of families in the deaf groups than those in the control group regularly obtained magazines. Significantly more fathers of the partially hearing subjects belonged to a library than did the controls, but this was an isolated finding as similar percentages of mothers and children of this group and of controls belonged to a library. This contrasts with the finding that the profoundly deaf subjects were reading significantly fewer books and comics than their partially hearing and normal counterparts. Also fewer profoundly deaf subjects belong to libraries. These findings carry even more weight in view of the fact that the subjects in the deaf groups were significantly older than the controls. On the other hand, parents of both deaf groups had more reading sessions with these children than did the parents of the control group, and the differences proved statistically significant in the case of the fathers (see Table 18, Appendix 1).

A particularly interesting finding is that half of the mothers of the partially hearing were having in or out-patient treatment for 'nervousness' as against just over a third of the mothers of the controls. However, none of the mothers of the profoundly deaf reported any nervousness. The most plausible explanation for this surprising finding is that those mothers whose children attend residential schools are less subject to day-to-day stresses and strains of coping with a severely handicapped child, whereas mothers of handicapped children who attend school from home are confronted daily with the varied problems generated by such handicap.

The parents of the deaf groups appear to have on the whole more harmonious marital relationships than those of the controls: there is

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significantly greater agreement amongst the parents of the profoundly deaf about child-rearing practices than amongst the control parents, and the parents of both deaf groups have significantly more discussion between them on matters of health and finance (see Table 19, Appendix 1). In both deaf groups the parents have significantly more leisure outings together and the mothers of both groups also have significantly more outings on their own than do the mothers of the control group. The fathers of the profoundly deaf subjects have significantly more outings on their own than do those of the control group.

Such positive social experiences are also complemented by significantly more positive attitudes towards their deaf children in many areas. The mothers of both criterion groups made significantly more positive remarks and significantly fewer critical remarks about their children than did the mothers of the control group (see Table 19, Appendix 1).

On the other hand, the mothers of both deaf groups had significantly less in the way of regular daily verbal communication with their children than their controls, though this is to be expected (Table 20, Appendix 1). This is also true of the fathers of the profoundly deaf group. Similarly, both criterion groups of children have less interaction with their mothers than the control group. Indeed, there appears to be a gradient of communication related to the amount of hearing the child has. This tragic limitation of communication constitutes the most obvious explanation for the finding that the children of both the criterion groups confide significantly less in their parents. The contrast continues. Although the mothers of the profoundly deaf subjects have a significantly greater tendency than controls to see the importance of speech, they are significantly more inclined to use 'baby talk' than the mothers of both the hearing or partially hearing children.

The mother proved to be the one to administer discipline in 71% of the profoundly deaf subjects and in 68% of the partially hearing subjects. The corresponding figure in the control group was only 35%. This is a significant difference for both the deaf groups compared to the controls. Furthermore, management appears to be significantly more strict for the profoundly deaf with the same trend in the partially hearing, but falling just under the level of statistical significance as compared to the control group.

Additionally, parents have fewer expectations of the hearing-impaired children in spite of their being significantly older than the control group. While it is understandable that mothers of profoundly deaf children are not enthusiastic about their children going shopping (see references to Schlesinger and Meadows in the following section), there is no obvious explanation why the mothers of both hearing-impaired groups have significantly less expectation of their children tidying their own toys away than have their control counterparts. A

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possible explanation is that this reduced expectation simply reflects a leaning towards overprotection by these mothers.

Discussion of background factors

Considering the basic hypothesis that hearing-impaired children would have suffered more adverse experiences, it is clear from the findings that this proved to be true mainly as regards physical and organic factors.

The rest of the family and social data are more complicated. The final picture appears to be one of children whose parents are more supportive and less critical than usual, but there still appear to be a number of unexpected findings.

One might suppose that deaf children would tend to be reliant on their ability to read for acquisition of knowledge. On the contrary, we found that profoundly deaf children read fewer books and comics than their hearing counterparts and fewer profoundly deaf subjects belonged to libraries. These findings are consonant with the fact that the majority of deaf children are 'functionally illiterate' (Conrad, 1977) when they leave school. Some questions still remain. First, is it a lack of interest in reading in the home which is mainly responsible for the poor reading abilities of these children? This does not seem to be the case as more of their families received magazines and more fathers of the partially hearing subjects belonged to a library than their normal hearing counterparts. The second question is whether, despite their handicaps, the profoundly deaf are adequately encouraged to read independently by their parents. The empirical findings are that more of the parents of deaf children read to their children than parents of the normal hearing children. However, parents may not have the skills appropriate to the complex task of teaching deaf children how to read.

The third question is whether poorer intelligence and poorer hearing of our profoundly deaf children give rise to poorer motivation to achieve academically. This is likely to be a contentious issue—some authorities deny that profoundly deaf children have poorer intellectual abilities (see Chapter 10); others contend that the limited understanding of English by the majority of the deaf children is more likely to militate against the child being motivated to read independently. Some authorities have attempted to address themselves to some of these issues; for example, Lewis (1968) points out the need for recognizing the importance not only of giving deaf children 'lessons in grammar and in the regularities of the structure of English' but also of doing so 'in such a way as to maintain spontaneity of interest and some of the freshness of a living language'.

More recently, others have questioned such a view as they contend that English is by no means a living language to the deaf and that it rarely becomes so. Furthermore, Meadow (1975) asserts that there is

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general agreement that the young deaf child 'exposed to the difficult spoken English environment is extremely impoverished' in terms of the extent of his vocabulary and language as compared to a hearing child of equivalent age. Such proponents further argue that the deaf child's thinking, reading and writing is not in English but in patterns which are consonant with a visual mode of communication—hence English is a second language for the deaf (R. Freeman, personal communication).

Whatever the arguments, it seems that the profoundly deaf child is likely to have such great problems with understanding English that he may well not have sufficient motivation to expand his reading skills. So far the contribution of the educational system has not been discussed but, above all, educationalists must note the importance of improving the communication and language skills of the deaf. However, we believe that this is not sufficient and that improvement also has to be directed towards motivating independent reading among deaf children. Hence teachers have to seek ways of motivating the child and reinforcing academic responses. Furthermore, closer links between the school and the home could hopefully be fostered with a view to extending communicative and educational skills to the parents.

Similarly, despite the importance that they place on speech, the mothers of the profoundly deaf are more inclined to use baby talk with their children. This could be interpreted as a form of infantilization which is often an important concomitant of overprotection. Such an hypothesis is supported by the fact that the parents of the profoundly deaf have lesser degrees of expectation of their children (however, this may have multiple origins including poorer verbal communication between parents and children). The above hypothesis of overprotection is not incompatible with the findings of comparatively greater degrees of discipline imposed by the parents on their deaf children as this may simply reflect greater concern about the safety of deaf children. However, it could be argued that parents perceive their profoundly deaf children as needing to be overprotected, perhaps to an extent that could hinder their development towards self help, achievement and independence. One plausible explanation is that some of the parents of the profoundly deaf display the excess devotion, overprotection and infantilization of the syndrome described by Ounsted (1955) in relation to brain damaged children. In keeping with the theory is the evidence from Schlesinger and Meadow (1972) that parents of deaf children have a greater need to supervise their children in order to protect them. Freeman *et al.* (1975) also provide evidence of deaf children not being given as much independence by their parents as were their hearing controls. The fact that the fathers of deaf children take less responsibility for discipline compared to fathers of hearing counterparts, would also suggest infantilization. This finding is consonant with that of Jordan

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(1962) who presents some evidence that fathers of handicapped children tend to interact less frequently with such children than do their mothers. As the subjects of the criterion groups were older than the controls it further increases the possibility of a degree of overprotection.

If this explanation is correct, then certain hearing-impaired children may be socially handicapped by their parents' attitudes. Not only may these children become retarded in their social maturity, but they also may have less meaningful communication with their parents and further be more teased and bullied. Meadow (1975) has arrived at a similar conclusion in that she suggests that parents' attitudes and child-rearing practices may contribute most to the slow development of social maturity in their deaf children.

We are not arguing that overprotection is necessarily harmful but rather that it may hamper the child's drive towards independence and social maturity. Some of our findings may be explained by an excerpt from Kallman's (1963) summary as cited by Rodda (1970):

'In families with both deaf and hearing children, it was reported that deaf parents tend to have more problems of control and obedience with hearing children than with deaf ones. Apparently, the deaf approach their deaf children with less uncertainty, make fewer demands of them, and have a more realistic understanding of their potentials and limitations. Towards their hearing children their attitudes are shakier.'

Perhaps hearing parents react in a similar way to their hearing-impaired and normal children.

Little in the way of comparison is possible between this and other studies on the social factors we have explored, as virtually none of the previous studies have covered the same ground. Nevertheless, it is of interest to note certain findings. For example, Myklebust (1964) found that 150 deaf children in a residential school scored approximately 15% below normal hearing children on the Vineland Social Maturity Scale. Streng and Kirk (1938) came to a similar conclusion. The implications of our findings concerning the family and social data, described above, are in agreement with the findings of Myklebust and Streng. However, as social development and language acquisition are closely interrelated (Church, 1961; Leontiev and Leontiev, 1965; Lewis, 1968) it is to be expected that children whose language development has been retarded early in life through deafness will have fewer opportunities than normal hearing children for social interaction, both within the family and outside it.

2 Maternal attitudes and personality

Apart from the measures described in section 1, the attitudes and personalities of the mothers were assessed by the Maryland Parental

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Attitude Survey and the Eysenck Personality Inventory. A description of these instruments can be found elsewhere (Neligan *et al.*, 1976). As the results are essentially negative we have not provided a table.

Maryland

On none of the four scales (Disciplinarian, Indulgence, Protection and Rejection) are there any significant differences between any of the groups. At first glance this might be taken as not supporting the hypothesis advanced in the discussion of the background factors: e.g. that the hearing-impaired children are rather overprotected and infantilized. The results are, however, not necessarily contradictory. The Maryland reflects the general attitudes of mothers and tells us nothing about those attitudes which are specific to their hearing-impaired children, compared with their attitudes towards their normal hearing children. Nevertheless, it must be noted that elsewhere the Maryland differentiated between maternal attitudes of mothers of spina bifida and normal children (Van der Spuy *et al.*, personal communication). The question remains of why it discriminated in the case of spina bifida but not in the case of the hearing impaired. A precise answer is not possible, but it is feasible that, as spina bifida is a more obvious and severe debilitating and crippling condition than hearing impairment, it might have a greater effect on maternal attitudes. An alternative explanation is that the deaf children were significantly older than the controls and this might account for the lack of differences.

Eysenck Personality Inventory

On the Eysenck Personality Inventory completed by mothers we found no significant differences between the groups on the extraversion, neuroticism and lie scales.

Findings and discussion

There are few reported objective studies on the personality of parents of deaf children. This is surprising in view of the numerous studies on the psychology of the deaf child (Levine, 1956; Lewis, 1968; Rodda, 1970; Myklebust, 1964; Meadow, 1975). In a recent comprehensive study (Freeman *et al.*, 1975) 26% of the parents of deaf children were reported as having clear-cut emotional disorder but as there was no control group it is difficult to know what such a figure means. In any event, our findings tend to suggest that the personalities of mothers of deaf

children are not significantly different to those of mothers of normal children.

Such lack of evidence of higher levels of neuroticism at one recent point in time does not preclude mothers from being adversely affected from time to time over the long years of having to cope with a handicapped child. Earlier in this chapter we touched on this point, where we noted that a high proportion of mothers of partially hearing children had sought psychiatric help, whereas none of the mothers of the profoundly deaf had done so. We advanced the tentative explanation for this apparently paradoxical finding that residential placement (weekly boarding) acted as a psychological buffer for the mothers against the stress of having to care for a handicapped child. Others, too, have reported that mothers of the deaf have reacted adversely to the stress of having a handicapped child, but these authors have not had the opportunity of comparing the reactions of such mothers where children have been cared for in different educational settings (Schlesinger and Meadow, 1972; Freeman *et al.*, 1975).

Much has been written about the advantages to the child of living at home while attending a special unit in an ordinary school as opposed to living as a weekly boarder in a residential school. However, little has been written about the impact on the parents of the greater or lesser sharing of the psychological burden and responsibility of caring for a deaf child. Our work suggests that the advantages to the parents of a greater sharing of responsibility with the school should not be ignored.

Conclusions

Our findings clearly demonstrate that hearing-impaired children suffered from more than the usual number of minor fevers (measles, mumps, chicken pox, whooping cough) and also major infection (meningitis/encephalitis) during the first five years of life. There was a stepwise increase in the incidence of such conditions from the normal hearing to the partially hearing to the profoundly deaf group. These illnesses usually occurred more often in the first three years of life in the case of the profoundly deaf.

No untoward degree of social and family pathology was recorded in the families of our deaf children. This is in accord with what is found in studies which generally are of an epidemiological nature, and contradicts the findings of studies using selected hospital samples.

One of the more notable findings is the lesser incidence of nervousness in the mothers of the profoundly deaf, as evidenced by the number of visits to their general practitioners, despite the greater stress of having a profoundly handicapped child than that of having a child who is partially handicapped. This is explicable in terms of the reduced

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exposure of such mothers to the day-to-day stresses of coping with a handicapped child, and constitutes an argument in favour of residential schooling.

The amount of communication between parents and their deaf children appears to be related to the severity of the deafness. Our data also indicate that mothers usually assume the disciplinary role, and are both more strict and supervisory and have fewer expectations of profoundly deaf children than they do of controls. This suggests an attitude of overprotection. In addition, despite the importance that they place on speech, the mothers of the profoundly deaf are more inclined to use baby talk with their children.