

Undesired Pregnancy and Children's Life Circumstances

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Introduction

The way society values children is reflected in an individual's desire for a child. In modern society a child is experienced as an economic burden. Arranging day care for a child is also considered problematic, because most women are employed. The value given a child has also been studied by comparing it with other commodities. From that viewpoint children are competing in the market like other commodities (Becker 1960). However, researchers have emphasized that children have certain features which cannot be replaced by other commodities. Emotions towards children enrich family life and strengthen family ties (Blake 1968, Namboodiri 1972). It is not insignificant that a child represents reproduction. The motives which increase the number of children are partly connected with ensuring reproduction. Consequently, in societies with high infant mortality, several children are needed to ensure reproduction. Hopes for a child of a certain sex also make people desire more children.

At present limitation of births and preference for a small family are prevailing tendencies in Finland (Sievers et al. 1974, Ritamies — Visuri 1975 and Riihinen et al. 1980). A trend towards having smaller and smaller families began in the early 1900s and continued to the Second World War. After the war fertility rose temporarily. At that time public opinion was also favorable towards an increase in fertility (Sweetser and Piepponen 1967). Rapid societal changes and intense migration demand small families. It is easier for a small family to move around and to adapt to rapid changes than a large family. To some degree this is because small families are more other-directed than large families. A large family may have very strict internal norms and values, which are difficult to influence. Moreover, a small family is advantageous for society because it is not as expensive as a large family. A small family is advantageous, from

a health perspective also. One example is the mother's health, especially, which may be strained by numerous closely-spaced pregnancies (WHO 1975, Eisen et al. 1979, Butler 1963, Rantakallio 1969). A small family is also preferable as regards a child's intellectual development (Belmont et al. 1976).

The prevention of undesired pregnancies depends on how successful birth control is. The contributing factors are information, attitudes and the use of contraceptives. It is particularly important that reliable contraceptives are easily available. Opinions about ideal family size correspond at least partly to what is a realistic number of children to strive for. For example, among religious persons whose norms are a barrier to contraception, ideal family size is larger than among other individuals (Jaccard — Davidson 1976).

The most unambiguous results have been obtained about the influence of sociodemographic factors on undesired pregnancies. The most significant background variables are occupation, education and place of residence. The most influential demographic variables are marital status, number of children, birth intervals and age at marriage (Cartwright 1976, Rantakallio 1974, Ritamies — Visuri 1975, Weller 1978).

Besides these sociodemographic factors there are social values and norms affecting the undesirability of children. In urbanized societies a small family is the current norm regardless of social system or cultural background. People desiring large families are in the minority. Among groups like this are well-to-do families for whom having children is neither an economic nor a day care problem. An important group is comprised by some religious minorities who consider a large family to be a value as such.

Above we have tried to depict the factors influencing a child's desirability. Some research results concerning the impact of these factors are available. However, a holistic theory explaining how these different variables are connected to each other and what their influence in society is, has not yet been developed. Fertility studies are characterized by dualism.

Examinations concerning fertility in the developing countries emphasize the importance of structural factors in society. When fertility in the industrialized countries is studied the individual's decision making process and contributing social psychological factors are accentuated. This is consonant with family planning ideology, which emphasizes the importance of the individual and the family in making decisions about having children. Present family planning ideology also emphasizes that society should be made more favorable to families with children. This point of view has been little emphasized in practical research work.

The present survey analyzes the problems of a child born from an undesired pregnancy as well as those in her family from two separate aspects. First we will elucidate the kind of problems they have and what can be done about them. This is primarily a family policy viewpoint. The other, demographic viewpoint, deals with the optimum prevention of pregnancies.

This study concentrates on answering two questions:

1. To what extent is the experiencing of a pregnancy as undesired a manifestation of social and economic problems and what impact do these problems have on a child's development.
2. What is an undesired child's physical, mental and social development like compared with a control child.

Subjects and methods

The subjects comprise 12,068 pregnant woman from the provinces of Oulu and Lapland in Northern Finland. The survey was started during the 6th or 7th month of pregnancy, covering 96 % of all the births in the above mentioned provinces in 1966 and ended in 1974 when to children completed their first schoolyear. The data was gathered by 188 local public health nurses at 157 maternity centers. They asked the mothers to fill out a questionnaire about the mother's and the family's biological and social features. The current desirability of their pregnancy was checked with the question: Do you think this pregnancy a) has occurred at a convenient time, or b) would have been more desirable later, and the third c) is totally undesired. Twelve percent of the mothers felt their pregnancy was undesired and 63 % stated that the time pregnancy began was convenient (Rantakallio 1969, 1974).

The group surveyed has been chosen among the mothers in the group who responded that their pregnancy was not desired. The control group consists of mothers in the group with a desired pregnancy. This study uses the same indicator used in fertility studies manifesting how one has succeeded in fertility control. The indicator is divided into three parts: the pregnancy takes place at a desired time, the pregnancy occurs at an inconvenient time, i.e. timing error and the pregnancy should not have occurred at all, i.e. limiting error.

The follow-up study about the undesired children took place after their first school year. Among the undesired children 300 cases, i.e. about one-fifth of all the undesired, were selected as the research group by systematic sampling. The sampling was based on the numbering in the original questionnaire. Thus the sample covered both provinces and children born at different times of the year. In addition two restrictions were set up. The first was that the children be born in 1966. Some of the children surveyed were born at the end of 1965 and some in the beginning of 1967. Secondly, the children should be alive at the age of five (the last available data). Every child examined got a control child among those who were born from desired pregnancies in 1966. The child and the control were to be as homogenous as possible in terms of the following variables: mother's marital status, number of previous births, place of residence and social group. The social group consists of four different categories accord-

ing to the father's occupation with a separate fifth category for farmers. If a completely homogenous matched pair was not available, the following measures were taken:

- father's occupation*: a control child was selected so that both belonged to the first or second social class or both were farmers,
- place of residence*: both should live in an urban area or a rural area,
- number of births*: the number of births closest to the original was chosen,
- marital status*: classification into married or not married was used.

Although the matched pairs for the undesired children were picked out among the population of 7,410 desired children, selecting the pairs did not absolutely succeed in terms of all the criteria variables at the same time. In regard to the five criteria which were taken into account when choosing the controls for the desired children, finding controls succeeded completely for two criteria. *All the children* were born in 1966. The other criteria with no difference between the pairs is the *family's marital status*. As regards the *children's birth order* parity was greater with the undesired children in ten cases and the controls in six cases. Regarding *the place of residence* variation was noted among 42 pairs. In 22 cases the undesired children lived in a more urbanized area than the control children and in 20 cases the situation was the reverse. *The father's occupation* varied among 46 pairs. The occupations of the undesired children's guardians were on a higher social level in 23 cases than those of the controls'. In 23 cases the reverse situation prevailed with the undesired children's guardians having occupations from a lower social level than those of the controls'.

In most cases the children began their school education in fall 1973 and completed their first school year in spring 1974. Because of the summer vacation the inquiry was sent as late as fall 1974. Both the family and the child's teacher received their own inquiry. The family's address was obtained from the population register center. Primarily, lacking data was checked at the local population register. The addresses for those who had emigrated to Sweden were obtained from the Finnish embassy in Stockholm. Another home inquiry was sent to those who had not responded within a month. The home inquiry was answered by 285 families of undesired children and 284 families of control children. The response percentage for the home inquiry was 95. The teacher inquiry was answered by 271 undesired children's teachers (90 %) and 274 teachers of control children (92 %). Ninety-one percent of those who had emigrated to Sweden answered the family inquiry and the proportion regarding the teacher inquiry was 78 %.

Significance was tested with the χ^2 -test. In paired comparisons the significance is found with the Sign-test for ordinal variables and with the t-test of dependent samples for continuous variables (Siegel 1956).

Findings

Family

A family's social class has been specified according to the father's occupation during the mother's pregnancy and according to the guardian's occupation when the child was eight years old. In estimating the family's social level it was found that social decline was visible in 22 % of the families with undesired children, occurring mostly (63 %) from the III social class to the IV social class. Correspondingly, social decline was seen in 13 % of the control families, with 70 % of this from the III to the IV social class. When changes in social status were examined, the farmers as well as the group »no information» were eliminated (Rantakallio — Myhrman 1981).

Among the children surveyed six families in the IV social class began to farm; among the controls the number was 18. Some of these farmers had an unknown occupation before the child was born: such was the case in two of the families with undesired children and three of the control families. Thirty-two families with undesired children had changed from farming to other occupations, most of them (24 families) to the IV social class. Correspondingly, 22 control families had left farming and entered other occupations, 16 of them occupations in the IV social class.

In *internal migration* no large variations were observed between the families examined and the controls. The number of migrants moving within and between the municipalities was almost the same in both groups. Among families with undesired children 10 % emigrated to Sweden, the proportion of the controls being 4 %. Among all the emigrants to Sweden the percentage of families with undesired children was 71 (Myhrman 1977).

During the examination period *the standard of living* in the families examined and the control families *has changed rapidly* indicating the general change in the standard of living occurring during those years. The undesired children's standard of living was distinctively lower in 1966 than that of the controls, measured with both consumer goods and living comforts. By 1974 the families with undesired children had been able to breach the gap to almost the same standard of living as the controls.

As regards *living space* the families with undesired children were not, however, able to reach the level the control families held. On the contrary, the gap has grown in spite of the greater number of births in the control families than in the families with undesired children. Forty percent of the families with undesired children lived in crowded housing while the proportion was 28 % in the control families. The difference is statistically significant.

The proportion of incomplete families among the families surveyed during pregnancy was 17 % and 18 % in the control families. Most of the unmarried mothers were married when the child was eight years old. The proportion was

66 % among the undesired children's mothers and 83 % among the controls' mothers. Some of the mothers who were not married during their pregnancy were now widowed or divorced. During the examination period the number of the divorced and widowed became threefold in the families with undesired children and doubled in the control families. The proportion of one-parent families had dropped to 14 % in the families with undesired children and 10 % in the control families.

The aim was to standardize the families also in relation to the *number of the children*. According to the data from the maternity centers for 1966 the mean parity was 4.95 in the families with undesired children and 4.86 in the control families. This means that 1,356 births had occurred in the families with undesired children and 1,326 children had been born in the control families. The difference is 30 children. Comparing these figures with the data from 1974 reveals that the difference among children born before 1967 between the control families and the families with the undesired children has grown to 98 children. It is very difficult to find the reason for this increase in the difference. To some extent it arises from the fact that some children now belong to families other than the ones they were originally from either as adopted children or because of divorce. The principal reason for the differential is the fact that stillbirths or infant mortality have not been taken into account in the mothers' responses. The variations in the examined children's birth order and that of the controls are minimal, however.

Between 1967 and 1974 111 children were born in the families with undesired children and 178 in the control families. The difference is statistically significant. The influence of the Abortion Act of 1970 on the births of children in the families examined and in the control families was similar. In 1971—1974 31 children were born in the families with undesired children, in the families with control children the figure was 51. The proportion of births occurring in the families with undesired children in the years following the Abortion Act was 28 % and in 1967—1970 the corresponding proportion was 72 %. In the control families 29 % of their children were born after the Abortion Act came into force.

The number of children in a family can also decrease if a child dies or if children move away from home. One or more children had died in 24 of the families with undesired children, the corresponding figure being 36 in the control families. The significance is statistically suggestive. The dead siblings numbered 30 altogether in the families with undesired children and 46 in the control families.

In 111 families with undesired children siblings had *moved away* from home and 95 in control families. At the moment of inquiry the youngest sibling who had moved away from home was under 18 years in 35 families with undesired children and in 33 control families. In 33 families with undesired children and 25 control families the youngest sibling who had moved away from home was aged 18—20 years. The corresponding figures regarding children who had

moved away from home at over 20 years of age was 43 among the undesired and 37 among the controls. The number of children who had moved away from home was the same both in the families with the undesired children and in the controls. There was also no difference in the age of the youngest sibling to move away.

This study analyzes *sex distribution* in the families with two or more children. Before the undesired child was born 19 families had only boys or girls, the corresponding number in the control families was 44. Statistically the difference is very significant.

The *health of the parents* has a strong impact on their social and economic security. In this study the parents' health has been measured with very strong variables, whose connection to the family's social and economic security is clearly evident. The fathers of 15 undesired children had died, as had those of 11 control children. In the families with undesired children 32 fathers received national pension, the corresponding figure being 16 in the controls. The difference is statistically almost significant. Among both the families with undesired children and the families with controls two mothers had died. Among the undesired children's mothers there were 20 recipients of national pension and among the controls 16 mothers received national pension.

The families with undesired children had a lower *income* than the controls. The difference concerning income from wages and salaries was significantly suggestive. After eliminating those who had emigrated to Sweden and their controls the proportion of low-income families among the families surveyed is 45 % (less than 1000 Fmk/month) and 32 % among the controls. Statistically the difference is almost significant. Both wage income and entrepreneurial income was received by 24 % of families with undesired children as well as by 20 % of control families. Among the families with undesired children there were a few more one-parent families than among the controls.

Table 1 shows that less than 0.5 % of the undesired children received *child care allowances* in 1973, the corresponding proportion being 4 % in the control group. Statistically the difference is almost significant. In 1974 the situation had levelled out so that 3 % of the undesired children and 4 % of the children in the control group received child care allowances. The proportion of child care allowance recipients among the undesired children as well as the controls was a considerably greater percentage than in Finland on the average which is 1.4 % (Statistical Yearbook of the Social Insurance Institution 1974, 1975). The development of special child allowances has been the reverse. Among the undesired children 11 % were special child allowance recipients in 1973, the proportion among the controls being 7 percent. In 1974 both groups received 8 % of the special child allowances. Special child allowances were granted to 2.5 % of all families in Finland in 1973 (Social Welfare Statistics 1974, 1976).

When the receipt of different social insurance allowances is analyzed concerning the experienced need, one can notice that as a rule there was a positive correlation for the families with control children. As regards home care support

Table 1. Feeling need for social allowances, request and receipt of social allowances in 1973 and 1974.

Social allowances	Feeling need	Request	Receipt	Receipt
	N	N	1973 N	1974 N
Special child allowance				
Undesired children	49	40	26	18
Control children	39	32	16	17
Child care allowance				
Undesired children	23 *	10	1	7
Control children	10	6	7°	8
Family allowance				
Undesired children	63 *	91	77	43
Control children	44	84	65	36
Housing allowance				
Undesired children	38	47	..	36
Control children	27	38	..	29

the correlation was negative in the families with undesired children with only 30 % of those who felt that they needed the allowance receiving it. This can be interpreted to mean that the families with undesired children and the families with controls did not have a similar attitude towards social allowances for families with children. The families with undesired children felt that they needed all the social allowances more often than the controls. The criterion for receiving child care allowance is a child's long-term disease, handicap or invalidism. It is quite evident that some families did not know what 'child care allowance' meant and therefore showed their need for some kind of help in caring for their children by expressing a need for child care allowance.

A child in the first grade at school is not yet capable of taking care of herself independently while her parents are at work, and a child has approximately only four school hours a day. That is why we attempted to find out how the parents had arranged child care before and after school hours. An adult person made breakfast for 67 % of the undesired children and for 77 % of the control children. The difference is statistically suggestive.

Twenty-three percent of the undesired children forgot their school things at home sometimes or often, the corresponding proportion being 17 % among the controls. This represents an almost significant statistical difference.

Eight percent of the undesired children were often or sometimes late for school whereas the proportion was 4 % among the controls. Statistically the difference is not significant, however.

Forgetting school things is clearly sex-linked. Boys forgot to take things to school twice as often as girls. However, the statistical difference was found among girls. The undesired girls forgot their school things sometimes or often almost significantly more often than the control girls. Compared to the control boys more than twice as many undesired boys were late for school every now and then or often. The difference is statistically suggestive.

Children

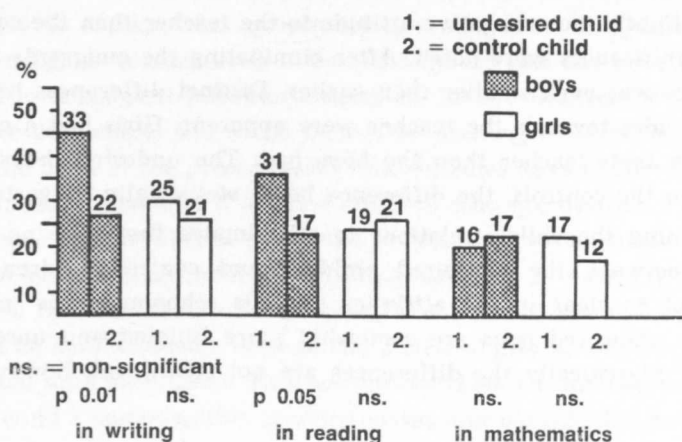
The results concerning *the physical development* of the children were not very explicit. The undesired children were somewhat shorter and lighter than the controls. On the other hand, the undesired children had less long-term diseases than the controls. In paired comparisons the difference was statistically suggestive. In comparing the group of undesired children and the control group, the difference was statistically almost significant (Rantakallio — Myhrman 1980). An explanation for the fact that the controls had more long-term diseases could be that motives affecting a child's desirability are not always absolutely positive (cf. Visuri 1969). This statement is supported by the fact that siblings of control children had died statistically significantly more often than siblings of undesired children. The control children had been in the hospital somewhat more often than the undesired children. In this case one can presume that some families had had children to compensate for a sibling who had died earlier (Chalmers 1978, Fredrick — Adelstein 1973, James 1969). These children comprise a health risk group.

The children's *educational status* has been analyzed with results in different school subjects. Forty percent of the undesired children had a mean in the fall report card higher than the class average, correspondingly 44 % of the controls. The girls attended school with better success than the boys. Fifty-one percent of the girls had school report marks over the average of the whole class, the corresponding proportion being 36 % among the boys. Undesirability of the child was not significant in regard to school report marks. Results in theoretical subjects were measured with difficulties in learning them as well as with the need for special training in these subjects.

The undesired individuals had more learning difficulties in all the subjects analyzed than the controls. In relation to writing difficulties the risk ratio was 1.5:1, which was statistically suggestive. Both writing and reading difficulties were emphasized among the undesired boys.

In receiving special teaching large differences existed between the undesired and controls. Statistically the undesired got significantly more special teaching in writing and reading than the controls. Special teaching was accentuated among the undesired boys in both reading and writing (Figure 1). Special teaching in reading was given to the undesired boys almost significantly more often

Figure 1. Additional teaching in theoretical subjects (boys and girls).



than to controls, while the difference in special teaching in writing was statistically significant.

Besides learning difficulties and special teaching, questions were also asked concerning who gives necessary additional teaching. Among the undesired children 87 individuals received additional teaching, the figure being 68 among the desired. Those getting additional teaching numbered less than those getting special teaching in different subjects. This arises because learning difficulties and additional teaching are given to the same children.

Additional teaching by a specialized teacher was accentuated with the undesired children, particularly with the undesired boys. They received additional teaching from a specialized teacher four times more frequently than the controls. This difference is statistically almost significant.

The undesired children did not succeed in training subjects quite as well as the controls. The clearest difference was seen in oral performance, which was poor among 19 % of the undesired children and among 13 % of the controls. The difference was statistically suggestive. After excluding those who emigrated to Sweden, the performance was poor among 18 % of the undesired children, the proportion being 12 among the controls. Problems in oral performance also converge on the undesired boys, 23 % of whose oral performance was poor.

In this study poor success in school is linked with difficulties in the mother tongue. The oral performance of the undesired children was poorer than that of the controls, the difference being statistically suggestive. The undesired children participated in special writing teaching statistically very significantly more often than the controls. This is due partly to the fact that 10 % of the undesired children went to school in Sweden (Myhrman 1977).

The teacher was asked to give an estimate on a 5-class-scale concerning the child's attitude towards her teacher and her schoolmates. The undesired children had a slightly more negative attitude to the teacher than the controls. No statistical significances were noted. After eliminating the emigrants to Sweden the difference was even smaller than earlier. Distinct differences between the sexes in attitudes towards the teacher were apparent. Girls had a closer relationship with their teacher than the boys had. The undesired boys are more reserved than the controls, the difference being statistically suggestive.

In examining the child's relations to schoolmates there are no noticeable differences between the undesired children and control children. The sex impact is not as clear in the attitudes towards schoolmates as towards the teacher. The undesired boys are somewhat more isolated and unselfish than the controls. Statistically the differences are not significant, however.

Discussion

Among the families with undesired children the proportion of those who left agriculture in 1966—1974 was greater than among the control families. Living conditions in the country are more child-centered and problems in child day care are not as eminent as in the urban areas. The families with undesired children emigrated more often to Sweden than the controls. Children are always forced to emigrate. Many researchers consider migration a stress factor especially among children (Liljeström 1974, Kantor 1965: 86).

According to the results obtained the standard of living in the families with undesired children rose faster than in the controls and faster than in Finland in general. According to Becker (1960) this can be interpreted so that a child attains more and more clearly the nature of a commodity in the modern society of technology. Property had increased in the families with undesired children in spite of the fact that their economic and social security is very scant and income is low. One explanatory factor for the increase in the material level of living among families with undesired children is that more than twice as many of these families as compared with the control families emigrated to Sweden.

The importance of the effect of ideological factors on fertility has been analyzed only a little. The Catholic impact on birth control and number of children has been of principal interest. However, it has been found that religion has had only a small influence on birth control (Bumpas — Westoff 1970).

In Northern Finland there is a small religious minority, Old-laestadians who include about 10 % of the population in Northern Finland. This religious denomination does not accept fertility control, and this is reflected in opinions about family size among the rest of population. This is demonstrated by the fact that family size in Northern Finland has remained larger than elsewhere in Finland up to the 1970s (Fougstedt 1977).

It is quite evident that ideological indicators are of eminent significance in attitudes towards family planning and undesired pregnancies. Jaccard and Davidson (1976) explain that people try to rationalize the birth of a child because of religious reasons even if the ideal family size has been overreached. In addition to ideological indicators biological factors interfere with the influence of pure economical and social factors on desiring children. It can be presumed on the basis of the present study that families have children to compensate for something and that it is these children who are desired. That involves ensuring reproduction. This is supported by the observation made by Riihinen et al. (1980) that in large families a sibling has died in every fifth family. It was assumed that the death of the sibling in the families with undesired children would be more common, because the undesirability and number of siblings are connected with each other. This was not verified. On the contrary after the death of a child a compensative reaction arises and parents desire a new pregnancy.

The above mentioned is an interesting note because the decrease in infant mortality and in the number of births are parallel. These two factors are linked with each others. The biological factor connected with reproduction at least partly explains the compensative reaction of a new pregnancy. Correspondingly it is not a fully acceptable motive to have children merely because of their sex. Riihinen et al. (1980) noted that a one-sided sex distribution does not contribute to a desire for a new pregnancy. The present study proves clearly that if the pregnancy has commenced and if the sex distribution of earlier children is one-sided, the pregnancy is seen as desired more often than undesired. This same observation was made in an American study by Kruegel (1975).

The potential effects on a child's health have been considered the most important reason to prevent undesired pregnancies. In this survey the health of the undesired children was no worse than that of the controls. The mothers of the undesired children stated less long-term diseases than did the mothers of the controls. This is explained by the fact that some desired children were so-called compensating children as shown above, whose beginning in life is weaker perhaps because of environmental and genetic factors. The fact that no distinct differences in the health of the children were seen supports Soiva's (1980) idea that it is abortion that is a health risk for an undesired pregnancy. A prerequisite for this is maternity and child services of a very high level which take into consideration pregnant women who are socially in a risk group as well as children with limited resources. The Nordic health care system is very developed and is able in part to compensate for health problems arising from demographic factors. A good example is that in Sweden the health of a child about to be born is minimally dependent on the number of children or birth order. The significance of these factors for the health of the child is clearly greater (Meirik et al. 1980) e.g. in Scotland and the U.S.A. The findings from the present study show that in Finland this matter has been cared for well.

This study shows that undesired children have more difficulties in learning than the controls. This is accentuated in special writing and reading teaching. Also in oral performance the undesired children had more problems than the controls. This indicates slower linguistic development in the undesired children.

It has been well documented how intellectual development and the number of children in the family are related, as well as how birth order influences school success (Belmont et al. 1976, Poole — Kuhn 1973). Attempts to explain these findings have concerned two factors. First the number of children itself influences child development, because adults have less time for intercourse with each child. The other point is that a certain type of parents have many children. This explanatory model emphasizes the parents' deficient ability to make plans for their own life. Oldman et al. (1971) measured the parents' ability to plan their own life by their success in family planning. They found out that the number of children had no influence on the intellectual development of the planned children, whereas the intelligent quotient of the unplanned children fell while the number of children increased. The present study supports the conception mentioned here, but further studies are needed before more precise conclusions are made. Insecurity in early childhood is reflected in a child's later development. Many studies have revealed emotional retardation in undesired children (Höök 1975), and even mental problems (Bohman 1971, Dytrych et al. 1975 and Forsman — Thuwe 1966).

Some problems in adaptation to school could be seen especially among the undesired boys in this study in reserved relations towards the teacher. The undesired boy's schooling and learning difficulties were also emphasized. The result is analogous with earlier studies (Bohman 1971 and Matjesek et al. 1975). In relations with schoolmates the undesired children did not differ from the controls.

Social and economic factors influence the undesirability of pregnancy. The undesirability of pregnancy can be seen as an indicator of social and economic difficulties in spite of social background. A child's undesirability is dependent on culture and reflects the prevailing values and norms of society. One may presume that they have an impact on the family and children.

References

- Becker, G. S.: An economic analysis of fertility. Demographic and economic change in developed countries, pp. 209—240, Princeton 1960.
- Belmont, L. — Stein, Z. A. — Wittes, J. T.: Birth order, family size and school failure. *Develop Med Child Neurol* 18: 421—430, 1976.
- Blake, J.: Are babies consumer durables? A critique of the economic theory of reproductive motivation. *Population Studies* 22: 5—25, 1968.

- Bohman, M.: A comparative study of adopted children, foster children and children in their biological environment born after undesired pregnancies. *Acta Paediatr Scand*, Suppl. 221, 1971.
- Bumpass, L. L. — Westoff, C. F.: *The later years of childbearing*. Princeton University Press, Princeton, New Jersey 1970.
- Butler, N. R. — Bonham, D. G.: *Perinatal mortality*. E. & S. Livingstone LTD, Edinburgh and London 1963.
- Cartwright, A.: *How many children*. Routledge & Kegan Paul, London 1976.
- Chalmers, I.: Perinatal epidemiology, strengths, limitations and possible hazards. In »Current Status of Foetal Monitoring and Ultrasound in Obstetrics.» Edited by R. W. Beard and S. Champbell. Royal College of Obstetrics and Gynaecology, London 1978.
- Dytrych, Z. — Matejček, Z. — Schüller, V. — David, H. P. — Friedman, H. L.: Children born to women denied abortion. *Family Planning Perspectives*, Vol. 7, No. 4 July/August 1975.
- Eisen, M. — Ware, J. E. — Donald, C. A. — Brook, R. H.: Measuring components of children's health status. *Medical Care* XVII: 902, 1979.
- Forsman, H. — Thuwe, I.: One hundred and twenty children born after application for therapeutic abortion refused. *Acta Paediatr Scand* 42: 71, 1966.
- Fougstedt, G.: Trends and factors of fertility in Finland. *Commentationes Scientiarum Socialium* 7, 1977. Societas Scientiarum Fennica.
- Fredrick, J. — Adelstein, P.: Influence of pregnancy spacing on outcome of pregnancy. *Br Med J* iv. 753: 1973.
- Höök, K.: The unwanted child-effects on mothers and children of refused applications for abortion. In »Society, Stress and Disease». Edited by L. Levi. pp. 187—192. Oxford University Press, London 1975
- Jaccard, J. J. — Davidson, A. R.: The relation of psychological, social and economic variables to fertility-related decisions. *Demography* 13: 329—338, 1976.
- James, W. H.: Central nervous system malformations, stillbirths, maternal age and birth order. *Ann Hum Genet* 32: 223, 1969.
- Kantor, M. B.: Some consequences of residential and social mobility for the adjustment of children. In »Mobility and Mental Health». Edited by M. B. Kantor. Springfield, Ill. C. C. Thomas, 1965.
- Kruegel, D.: The validity of retrospective reports of unwanted births in the United States: Effects of preference for children of a given sex. *Studies in Family Planning* 6(9): 345—348, 1975.
- Liljeström, R.: *Uppväxtvillkor*. Uddevalla. Allmänna Förlaget 1974.
- Matejcek, Z. — Dytrych, Z. — Schuller, V.: A Prague study of children born from unwanted pregnancies. II. Girls and boys. *Psychol. Patopsychol. Dietata* 10/4: 291—306, 1975.
- Meirik, O. — Smedby, B. — Ericson, A.: Impact of changing age and parity distributions of mothers on perinatal mortality in Sweden, 1953—1975. *Int J of Epid*, Vol. 8, No. 4: 361—364, 1979.
- Myhrman, A.: The mother-child project in Northern Finland: Relationships between family migration and child development at school are studied in a socio-medical risk group. *Nordic Council Arct. Med. Res. Rep.* No. 20: 43—50, 1977.
- Namboodiri, N. K.: Some observations on the economic framework for fertility analysis. *Population Studies* 2: 185—206, 1972.
- Oldman, D. — Bytheway, B. — Horobin, G.: Family structure and educational achievement. *J Biosoc Sci*, Suppl. 3: 81—91, 1971.
- Pohlman, E.: *The psychology of birth planning*. Schenkman, Cambridge, Massachusetts 1969.

- Poole, A. — Kuhn, A.: Family size and ordinal position: Correlates of academic success. *J. Biosoc. Sci* 5: 51—59, 1973.
- Rantakallio, P.: Groups at risk in low birth weight infants and perinatal mortality. *Acta Paediatr Scand, Suppl.* 193, 1969.
- Rantakallio, P.: The unwanted child. *Acta Univ Oul, Series D, Medica No. 8*, 1974.
- Rantakallio, P. — Myhrman, A.: The child and family eight years after undesired conception. *Scand J Soc Med* 8: 81—87, 1980.
- Riihinen, O. — Pulkkinen, A. — Ritamies, M.: Suomalaisen perheen lapsiluku. Väestöntutkimuslaitoksen julkaisusarja D (Publications of the Population Research Institute, Series D), No. 7, 1980.
- Ritamies, M. — Visuri, E.: Suomalaisen perhekoko — sattuma vai suunnitelma. Väestöntutkimuslaitoksen julkaisusarja D (Publications of the Population Research Institute, Series D), No. 1, 1975.
- Siegel, S.: *Nonparametric statistics: For the behavioral sciences*, McGraw-Hill, New York 1956.
- Sievers, K. — Koskelainen, O. — Leppo, K.: *Suomalaisten sukupuolielämä*. WSOY. Helsinki 1974.
- Soiva, K.: Vaarallinen raskaus. *Duodecim* 96: 98—100, 1980.
- Sweetser, F. L. — Piepponen, P.: Nuoret ikäluokat Suomessa ja Yhdysvalloissa. *Yearbook of Population Research in Finland, Vol. VIII, 1963—1964: 7—19*.
- Weller, R. H.: Wanted and unwanted childbearing in the United States. *Vital and health statistics: Series 21, Data from the National Vital Statistics System No. 32*, 1978.
- WHO: *Evaluation of family planning in health services*. Technical Report Series 569, 1975.
- Visuri, E.: Poverty and children. A study of family planning. *Transactions of the Westermarck Society, Vol. XVI*, 1969.