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Decision-making in the selection of problematic families for foster day-care

Summary

The foster day-care programme focuses on children from a problematic rearing situation, who are placed in foster day-care families for a part of the day. In order to answer the question ***'What target group is eligible for foster day-care?'****, a linear combination of a judicial measure and relatively poor family relations forms an adequate* ***predictor of drop-out in children and families*** *for foster day-care. A constructed scale of risk degrees enables the diagnostician to take an optimal decision with respect to the target group.*

Introduction

Early 1991 six Boddaert centres in Holland initiated the foster day-care programme. A Boddaert centre is a **specialised centre for day-care** for children and their parents. The child in question stays in a treatment group and its parents receive guidance from the centre. A family is eligible for aid from the Boddaert centre when in the case of a problematic rearing situation. Rink (1988) describes a problematic rearing situation as a rearing situation in which rearing adult and child are no longer mutually accessible. As a consequence, the rearing adult can neither stimulate the child's capabilities nor compensate its deficiencies. The **problematic rearing situation** may generate emotional and behavioural problems with the child in the home situation, at school and in contacts within its social environment (such as undesirable contacts with peers and delinquent behaviour). The disturbed rearing relationship between adult and child is often associated with the presence of problems with the parents (e.g. depression and marital problems) and in their situational context (e.g. unemployment or the lack of a socially supportive network). The integrated form of Boddaert aid directed at both the child and its parents aims to improve a stagnated rearing situation.

The idea of **designing a foster day-care programme** stems from the world of practice. The day-care centres found that on the one hand some children are difficult to place in a treatment

group and that, on the other, parents can be consigned to long-term care resulting in the child's unnecessarily prolonged stay. In order to provide these children and their parents with some form of day-care, six Boddaert centres decided to initiate the design of the foster day-care programme. In practice, the programme means that the child is placed in a foster day-care family (recruited and selected by advertising) and that **parents as well as foster day-care parents receive guidance from the Boddaert centre.** Considering the fact that this form of care is entirely new, the task of the attending study is twofold:

1. describing the experiences of the people involved and facilitate their transference to others; and
2. optimising this new form of care.

Research question

The foster day-care programme offers care to parents and children who are eligible for day treatment but in whose cases there is **no indication for the child to receive group treatment** in the Boddaert centre. The object of the attending study is to answer the question of what target group can profit from this form of care. **In other words: which parents and children can benefit from this form of treatment and which families cannot?** What is the degree of certainty for each individual that an admission to foster day-care will be successful? Does the expected favourable outcome of the treatment outweigh the risk of a poor result? These questions make an appeal to the **clinician's power of judgement:** given the diagnosis of a problematic rearing situation, which form of care (in a specialised centre or in a foster day-care family) should be opted for in order to optimise the chances of success?

In the domain of youth care, various studies have been conducted in order to make transparent the **decision-making strategies** by means of **descriptive models.** These models can serve as expedients for decision-making. They are often designed on the basis of the clinician's judgements. These descriptive models can be subdivided into **process models** and **structure models.** In the case of **process models,** the emphasis is on the cognitive decision-making procedures. Examples of research into cognitive decision-making procedures are studies conducted by Schuerman & Vogel (1986), Gleeson (1987) and Shapira & Benbenishty (1993). Schuerman et al (ibid.) have designed a **flowchart** to show how to reach a decision concerning the appropriate kind of treatment for a child (ambulant, foster, residential). Gleeson (ibid.) developed a flowchart in which consecutive steps are described for diagnosing child abuse. Bu using fictitious cases, Shapira et al. (1993) determined which constituent attributes and their weights are important in the diagnostic decision-making procedure of child abuse. The **structure models** can be distinguished from the process models by the fact that the intermediate cognitive process is left out of consideration. These models can be found in various studies, including those of Stone & Stone (1983) Schwab, Bruce & McRoy (1984), Knapp, Bryson & Lewis (1987) and, in the Netherlands, of Mesmann-Schultz (1987). In these models, which are constructed with the use of **regression comparisons**, the decision-making **(output)** is linked to the decision-maker's information **(input).**

The above-mentioned process and structure models share the following characteristics.

1. They have been developed on the basis of decisions that are made in practice. The **judgement of the decision-maker is considered a given fact.** Discrepancies and similarities between deciding behaviour and final outcome are not investigated. The aim of the studies mentioned is to make transparent the consistencies in deciding behaviour.
2. The models have been constructed on the **basis of information provided by social workers.** As a result, the information given by the parents may be modified by the social workers' views (see i.e. Rosen, 1993). If a decision has been reached as to a treatment on the basis of distorted information, the decision outcome may not be optimal.

In order to answer the research question 'What target group is eligible for foster day-care?', the present study will focus attention on the two following aspects: firstly, **information is collected from the parents** and secondly, a **valid criterion is** to be selected to distinguish the group of parents and children who did **benefit from** foster day-care from those **who did not.** If it appears to be possible to construct a model providing information about the opportunities and risks as to the outcome of treatment in individual cases, the model can be applied by the decision-makers in order to determine whether the child and its parents are suited for foster day-care. To put it differently: the absolute uncertainty at the onset of the programme as to the target group's eligibility for foster care can be reduced to a manageable uncertainty in the future by **implementing a decision-supporting model.**

Method

Due to the fact that at the start of the programme little to nothing was known about the target group, the setting (the stay of the children in the foster day-care families) and the employed influencing methods, a **descriptive and exploratory study is** considered the most appropriate design. The study can also be typified as prospective-longitudinal, considering that the **parents and their children are monitored over a three-year period.** Each year the developmental results of the foster day-care children and their parents are measured by the following instruments.

1. *The Child Behaviour Checklist 4-18 (Achenbach, 1991)*

   The 'Child Behaviour Checklist' consists of 20 skills questions and 118 questions concerning the emotional and behavioural problems of the child. In this study the focus is on the problem section. The response section consists of a three-point choice of answers. The addition sum of the answers to 118 questions on the child's emotional and behavioural problems yields an index which Achenbach (ibid.) has called Total Problems. In order to draw the line between age and gender-specific deviant and normal behaviour, the author has made a comparison of the total sum scores of the children who have and those who have not been referred to a health care service. If rough scores are transformed into *T* scores, it appears for statistical reasons that a *T* score 60 can be maintained as the limit score in order to distinguish the clinically referred from the non-clinically referred group (at *T*60 the child is in the so-called 'clinical range'). This scale has been administered to the biological mothers at the onset of placement (N=43) and one year later (N=38).

2. *The Family Climate Scale (Jansma, 1987)*
   The Family Climate Scale (FCS) describes the experience of family functioning. The (FCS) consists of 9 categories, each comprising eleven dichotomous (yes/no) items. For each category the minimal score is 0 and the maximal score amounts to 11. In the study on foster day-care, use has been made of those categories that are considered interesting from an orthopaedagogical perspective, i.e. **Cohesion** (cohesion among family members), **Expression** (expression of positive and negative feelings), **Organisation** (organisation of the family) and **Conflicts** (the number of conflicts among family members). The GKS was administered to the biological mothers at the **onset of placement** (N=36) and **one year later** (N=27). (Due to the fact that in some cases there were more children of one parent in the same foster day-care family, fewer Family Climate Scales have been collected than Behaviour Checklists.)

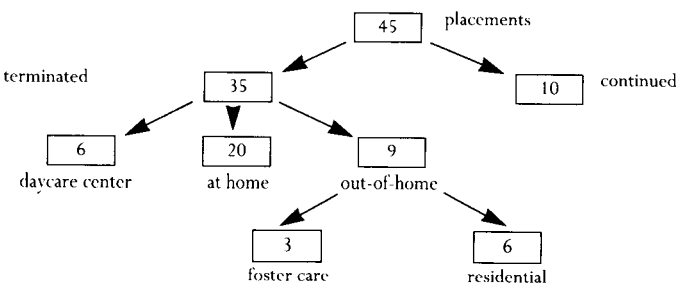
Finally, data have been gathered as to age, vocational training, nature of placement (judicial or voluntary) and suchlike.

In order to make a distinction between the group of children and parents who did profit from foster day-care and those who did not, the **follow-up status of the child has been selected as a dichotomous criterion.** It is supposed that the children who returned to their original homes have become accessible to the parent again: the problematic home situation has improved to such an extent that foster day-care is no longer necessary. Due to aggravated circumstances at home, a number of children could **not benefit from foster day-care and** have therefore been **placed out-of-home** (in a foster family or in a residential home).

Results

From January 1 1990 to July 1 1993, data have been collected of **45 children.** Eleven of the 45 children have received a judicial measure (24%). The mean age of the children (23 boys and 22 girls) is 8.7 years with 3.6 as the lower limit and 14.1 as the upper limit. By the date of counting (July 1 1993), **35 of the 45 children had left the programme**: 20 returned home, 9 children were out-of-home, 6 of them were placed in the centre (see figure 1).

Figure 1. *Flowchart of the output in foster daycare*



In the analyses below, the category of 'centre' has been left out of consideration, considering that the programme and thus half of the placements (3) were discontinued by one centre. Strictly speaking, the group belonging to the category of 'centre' comprises three children who have been referred to the Boddaert centre on the basis of their (family) characteristics. The size of the group is too small to be included in the analyses.

Table 1 presents an overview of the means on variables of the FACES (Cohesion, Expression, Organisation and Conflicts) and the mother's perception of the child's emotional and behavioural problems (**CBCL index Total Problems**). The list of variables has been complemented with the duration of the foster day-care child's placement and stay expressed in years. The means are split according to time of admission: T_1 pertains to the onset of placement and T_2 marks a year following placement. T_1 and T_2 are nested according to the groups 'home' and 'out-of-home'.

Table 1. *Means of the variables on T_1 and T_2 are nested under the groups 'home' and 'out-of-home'*

Variable	Home (N=18)		Out-of-home (N=9)	
	T_1	T_2	T_1	T_2
Duration of admission	.98		.96	
Total Problems	68.4	57.3	67.5	63.0
Cohesion	8.8	9.4	8.0	7.1
Expression	6.8	7.4	8.3	8.3
Organisation	7.4	8.2	7.0	8.6
Conflicts	5.6	3.8	6.3	7.0

The duration of admission of the 'out-of-home' and 'home' groups differs very little. According to the mothers in both groups, the severity of the child's total emotional- and behavioural problems in the home situation (Total Problems) has decreased. In the 'home' group the problems are more severe than in the 'out-of-home' group. In addition, as to organisation of the family household progress can be discerned in both groups. What is remarkable is that the 'home' group registers an increase in cohesion among family members and a decrease in the number of conflicts, and that the reverse pattern can be observed in the 'out-of-home' group (the cohesion among family members decreases and the number of conflicts increases). The expression of positive and negative feelings for the 'out-of-home' group remains stable at a high level. From the above-mentioned information it may be deduced that an out-of-home placement does not from result from the child's emotional and behavioural problems but from the quality of family relations.

The analysis of demographic data shows that the attribute 'judicial measure' is associated with a child's out-of-home placement. Five of the seven judicially placed children have been placed out-of-home and the two others have returned home. The relative risk amounts to 3.9, i.e. children with a family guardian measure have four times as high a chance of being placed

out-of-home than those without the measure. The estimated risk of an out-of-home placement on the basis of the attribute 'judicial measure' is 41.5%. This means that the attribute 'judicial measure' can serve as a predictor of out-of-home placement.

In order to find a linear combination of predictors which make the best differentiation between the 'home' and 'out-of-home' groups, two **discriminant analyses** have been carried out. In both analyses, the follow-up status of the child ('out-of-home' or 'home') is regarded as a criterion variable; the predictor variables are those mentioned in Table 1 complemented with the attribute 'nature of placement' (judicial or voluntary). In a cross-sectional discriminant analysis within T_2, it emerges that the following combination of variables can predict the follow-up status: 'judicial measure', Cohesion and Conflicts. (1) The classification results are presented in table 2.

Tablel 2. *Classification table of the discriminant function within T_2 for the 'out-of-home' (1) and 'home' (2) groups*

Actual group membership		Predicted group membership	
		1	2
Out-of-home	(N=7) 1	7 (100%)	0 (0%)
Home	(N=14) 2	2 (14.3%)	12 (85.7%)

The total percentage of correctly classified cases amounts to a respectable 90.5. **It appears from the discriminant formula that a combination of the attribute 'judicial measure' and poor family relations (Cohesion and Conflicts) is related to an out-of-home placement.** The severity of the child's problems does not appear to affect out-of-home placement. To put it differently, in the foster day-care group under investigation, **an out-of-home placement is not predicted by child characteristics but rather by family characteristics.** Similar research findings are found in foster care. In their studies on the factors affecting the duration of placement, Milner (1987) and Lawder, Poulin & Andrews (1986) found that the child's behavioural problems had little to no influence. In the studies by Milner (ibid.) and Lawder et al. (ibid.), the parents' characteristics (including demographic characteristics) nevertheless do appear to contribute significantly to the variation in the criterion of 'duration of placement'.

A prognostic discriminant analysis with the follow-up status of the child as criterion variable and the onset variables on T_1 as predictor variables, complemented with the attribute 'judicial measure', yields the following probability model: (2)

$$D = -7.33 + 2.48jm + .48ex + .13conf.$$

(The abbreviations have the following meaning: D=discriminant score, Jm= 'judicial measure, ex=Expression, conf=Conflicts.) The classification results of the discriminant function are displayed in table 3.

Tabel 3. *Classification table of the discriminant function within T_1 for the 'out-of-home' (1) and 'home (2) groups on T_2*

Actual group membership	Predicted group membership	
	1	2
Out-of-home (N=9) 1	7 (77.8%)	2 (22.2%)
Home (N=18) 2	2 (11.1%)	16 (88.9%)

The **total percentage of correctly classified cases amounts to 85.2.** The **sensitivity** of the discriminant function (the a priori chance that a child is diagnosed as 'out-of-home', given the prevalence of out-of-home placements) is 77.8%. The **predictive accuracy** (the a posteriori chance that a child will indeed be placed out of home, given the diagnosis of 'out-of-home) is also 77.8%. Supposing that the child does not have a judicial measure (in the original database 1 stands for 'no measure and 2 for 'measure') and that the mother scores 8 and 9 respectively on Expression and Conflicts in the FCS, the formula will present the following outcome:

$$\begin{aligned} D &= -7.34 + 2.4\,(1) + .48\,(9) + .13\,(8) \\ &= -7.34 + 2.4 + 4.32 + .91 \\ &= .37 \end{aligned}$$

The question is what risk of a placement having an unfavourable outcome does the diagnostician/decision-maker consider acceptable. Does the possible favourable result of the treatment outweigh the risk of an unfavourable outcome? What threshold does the diagnostician maintain in order to screen as many unfavourable results as possible (true positives) and to reduce the number of unjustly rejected cases (false positives) as much as possible (Metz, 1978). Table 4 presents the proportions of true positives (TPP) and false positives (FPP) together with the predictive accuracy for the **various cut-off points** of the discriminant function. (Frequencies are given between brackets.)

Table 4. *Proportions of true positives, false positives and predictive accuracy for each cut-off point*

Discriminant score	TPP (*f*)	FPP (*f*)	Pred. Accur.
D.00	78% (7)	17% (3)	70%
D.35	78% (7)	11% (2)	78%
D.40	67% (6)	5% (1)	87%
D.50	67% (6)	0% (0)	100%

Supposing that the decision-maker is content with the chance that the discriminant function will adequately predict 75% of the out-of-home placements, according to the table the corresponding cut-off point is D.35. This implies a reduction in the number of out-of-home placements of 78% (TPP). Two of the seven children (22%) would have been unjustly rejected for foster day-care. In the example given the outcome was .37, so that on the basis of the decision-maker's subjective criterion this child could not apply for foster day-care. The reverse also holds: when D is <.36 this child will be eligible for foster day-care. **In other words, the eligible target group for foster day-care is dependent on the subjective risk of an out-of-home placement that the decision-maker finds acceptable.** According to Table 4, the optimum is at D.35: the gain of the number of rightly rejected children is as high as possible with a minimal loss of the number of unjustly rejected children. Considering **the small size of the research group,** the decision-makers should relativise the constructed model and the table values.

Conclusions

The question 'What target group is eligible for foster day-care?' can be answered as follows. If success or failure of a placement is selected as objective criterion, the expected outcome of each individual case can be calculated with the use of a formula and a table indicating the degrees of risk. If the decision-maker establishes his own cut-off point as an acceptable risk of failure, the prescriptive model will contribute to improving the admission management in foster day-care. Considering the exploratory nature of the study, the formulated prescriptive model can form the first means of screening in order to demarcate the target group. The model will become more reliable when the results have been replicated by a larger research group. It appears from the type of variables in the formula that the success of any particular placement is not determined by the characteristics of the foster day-care child but exclusively by the characteristics of the home situation. In other words, the success of the treatment is dependent on the child's environmental characteristics. This finding is consistent with the research results by Kontos & Fiene (1987) and Lamb, Hwang & Bookstein (1988). These researchers found that in child care the child's social development depends largely upon their family background.

One specific factor in the decision-making procedure, the estimated chance of success, has been made transparent in the applied study. For this reason the model is considered a one-dimensional decision model. Apart from the chance of success, other considerations should be included in the decision-making procedures. For example, what is the expected effect in a particular case, what is the estimated stability of the changes in the long run, what are the estimated costs, what is the impact of the measure, what is the valuation of the parents and suchlike. Considering that these questions have not yet been quantified and integrated into a multi-dimensional index, **a follow-up study is needed in order to further optimise the admission management in foster day-care.**

Notes

1. In a cross-sectional discriminant analysis (Wilks method) within T_2, the following variables have been subsequently admitted to the model: Cohesion (=.66, F=9.59, df=1, p<.01), judicial measure (=.47, F=10.35, df=2, p<.01) and Conflicts (=.42, F=7.81, df=3, p<.01). The function is statististically significant (=.42, ^{2}=15.16, df=3, p<.01) and the canonical correlation coefficient is .76. The standardised discriminant coefficients amount to .78 for judicial measure, -.53 for Cohesion and .47 for Conflicts.
2. In a prognostic discriminant analysis, (Wilks method), the following variables have been subsequently admitted to the model: 'character of placement' (=.77, F=7.41, df=1, p<.05), Expression (=.55, F=9.62, df=2, p<.001) and Conflicts (=.53, F=6.89, df=3, p<.01). The canonical correlation coefficient is .69 and the function is statistically significant (=.53, ^{2}=15.06, df=3, p<.01). The standardised discriminant weights are .99 (character of placement), .85 (Expression) end .34 (Conflicts) respectively.

References

Achenbach, T.M. (1991). *Manual for the Child Behavior Checklist/4-18 and 1991 Profile.* University of Vermont: Department of Psychiatry.

Gleeson, J.P. (1987). Implementing Structured Decision-making Procedures at Child Welfare. Intake. *Child Welfare.* Vol. 66 (2) 101-112.

Jansma, J.B.M. (1987). *Gezinsklimaat.* Utrecht: Academisch Proefschrift.

Knapp, M., Baines, B., Bryson, D. & Lewis, J. (1987). Modelling the Initial Placement. Decision for Children Received into Care. *Children and Youth Services Review.* Vol. 9 (1) 1-15.

Kontos, S. & Fiene, R. (1987). Child Care Quality, Compliance with Regulations, and Children's Development: The Pennsylvania Study. In: D.A. Phillips (eds.) *Quality in Child Care: What Does Research Tell Us?* Washington: National Association for the Education of Young Children.

Lamb, M.E., Hwang, C-P. & Bookstein, F.L. (1988). The Effects of Out-of Home Care on the Development of Social Competence in Sweden: A Longitudinal Study. *Early Childhood Research Quarterly.* Vol. 3: 379-402.

Lawder, E.A., Poulin, J.E. & Andrews, R.E. (1986). A Study of 185 Foster Children 5 Years After Placement. *Child Welfare.* Vol. 65 (3) 241-251.

Mesman-Schultz, K. (1987). *De COM-procedure. Een methode om voor de kinderbeschermingspupillen een advies te bepalen.* Rijswijk: CWOK.

Metz, C.E. (1978). Basic Principles of ROC Analysis. *Seminars in Nuclear Medicine.* Vol. VIII (4) 283-289.

Milner, J.L. (1987). An Ecological Perspective On Duration of Foster Care. *Child Welfare.* Vol. 66 (2) 113-123.

Rink, J.E. (1988). Pedagogische verwaarlozing op de orthopedagogische werkvloer: enkele parameters voor onderzoek. *Nederlands Tijdschrift voor Opvoeding, Vorming en Onderwijs.* Vol. 4 (4) 230-232.

Rosen, A. (1993). Correction of workers' personal versus environmental bias in formulation of client problems. *Social Work Research and Abstracts.* Vol. 29 (4) 12-17.

Schuerman, J.R. & Vogel, L.H. (1986). Computer Support of Placement Planning: The Use of Expert Systems in Child Welfare. *Child Welfare.* Vol. 65 (6) 531-543.

Schwab, A.J., Bruce, M.E. & McRoy, R.G. (1984). Matching Children with Placements. *Children and Youth Services Review.* Vol. 6 (2) 125-133.

Shapira, M. & Benbenishty, R. (1993). Modeling judgments and decisions in cases of alleged child abuse and neglect. *Social Work Research and Abstracts.* Vol. 29 (3) 14-19.

Stone, N.M. & Stone, S.F. (1983). The Prediction of Successful Foster Placement. *Social Casework.* Vol. 64 (1) 11-17.