PREDICTORS OF OUTCOME FOR SEVERELY EMOTIONALLY DISTURBED CHILDREN IN TREATMENT

H. G. LUIKER

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy

> Department of Psychology University of Sydney

> > March 2007

Acknowledgements

The project from which this thesis arises – the Arndell Evaluative Research Program - was conducted by the candidate following his appointment (1990 – 2001) to the new position of clinician/clinical researcher at the Department of Child and Adolescent Psychiatry, Royal North Shore Hospital, St Leonards, NSW.

This unusual and innovative hybrid position was created by Dr Ken Nunn, then head of department and also director of Arndell Child and Adolescent Unit. While his departure from Australia soon afterwards meant that he was unable to participate in the research, it is a measure of the endurance of Dr Nunn's authority that the project - and my half-time clinical research position - was allowed to continue for over ten years by succeeding directors and heads of department.

The costs of the project other than my salary were met by a series of grants obtained by the candidate as chief investigator. The following financial support is gratefully acknowledged.

- 1992 Special Limited Research Grant, NSW Institute of Psychiatry (\$5000)
 1993 Mental Health Services Research and Evaluation Grant, NSW Department of Health (\$30,000)
 1994 The Financial Markets Foundation for Children (\$9,495)
 1995 The Financial Markets Foundation for Children (\$7,894)
- 1995 1998 Health and Human Services Research and Development Grant (RADGAC) under the National Mental Health Strategy, Commonwealth Department of Human Services and Health (\$63,362)

This funding allowed, most importantly, Mrs Daphne Lupton, a part-time receptionist/administrative officer at Arndell, to take on additional part-time duties as a research assistant to the project. I am grateful to Mrs Lupton for the diligence she brought to the tasks of data collection and entry, and the good humour she brought to her role as second member of what was essentially a two person research team.

Some of the material in this thesis has been previously presented at conferences and in workshops.

An evaluation of the therapeutic impact of Arndell Children's Unit on children's problem behaviour, social competence, and academic performance, and on family functioning *(co-presenters: Nicholas Kowalenko & Michael Gliksman)*. Annual Meeting of the Faculty of Child Psychiatry, Royal Australian and New Zealand College of Psychiatrists, Katoomba, 1992.

Some early results of the Arndell Evaluative Research Programme: 6 and 12 month follow-up (*co-presenter: Nicholas Kowalenko*). Rivendell Conference, Concord, 1993.

Pragmatic and methodological considerations in conducting evaluative research (workshop) (*co-presenter: Bill MacDonald*). Rivendell Conference, Concord, 1993.

Clinical and socio-demographic predictors of outcome in a population of emotionally disturbed children and adolescents following intensive psychosocial treatment. Annual Congress of the Royal Australian and New Zealand College of Psychiatry, Launceston, 1994.

Predictors of outcome in a population of severely emotionally disturbed children & adolescents following intensive psycho-social treatment. The Second National Conference on Child and Adolescent Mental Health, Melbourne, 1996.

Pragmatic and methodological issues in conducting evaluative research in child and family mental health settings (workshop). The Second National Conference on Child and Adolescent Mental Health, Melbourne, 1996

Other than the workshop of 1993 with Mr Bill MacDonald, which involved some of our shared experiences, the other co-presentations involved separate presentations by individual speakers rather than a jointly authored paper. I am grateful to my co-presenters, who by allying themselves with the project for a time – and in the case of Mr MacDonald by collecting his own additional data and completing independent research work – enhanced the viability of the project in the early years.

Dr Joan Symington, encouraged us to step up to difficult tasks during the period she provided clinical supervision at Arndell unit, overlapping the period during which the research project was conducted. This encouraged me to step up to the difficult tasks in my research role.

I acknowledge the direct suggestions offered by my thesis supervisors - Dr Stevie Whitmont (1993 – 1996), Dr Ros Griffiths (1999) and Dr Deborah Erickson (1999 – 2000) – on one hand, and the teaching by example of my associate supervisor Associate Professor Joel Michell, on the other.

However, the data analysis (and the thesis) owes its completion to Associate Professor (Quantitative Methods) Dave Grayson, who inherited the supervisorship in 2000 at year ten of the project. It was my very good fortune that he returned to the Department of Psychology at the University of Sydney at this time.

Otherwise, the work presented here is my own. The work embodied in this thesis is the result of my original research, no part of it has been submitted for any degree or diploma of any other university or institution and no material published or written by another person has been included except where due acknowledgement has been indicated.

CH	APTER 1. GENERAL INTRODUCTION
СН	APTER 2. LITERATURE REVIEW: CONCEPTUAL,
PR.	AGMATIC AND METHODOLOGICAL ISSUES
2.1	Introduction to this chapter
2.2	"Prescribed" research design
	2.21 Matching research design to the research question
	2.22 Matching research design to the phenomena under study?
2.3	Pragmatic issues
	2.31 Some purported difficulties
	2.32 Some neglected issues
	2.33 Anxieties underlying resistance to evaluation
2.4	Confusion about "clinical significance"
	2.41 Current measures and indices of "clinical significance"
	2.42 Conventional versus single-case data analysis
	2.43 "Pure" indices of effect size
	2.44 Conclusions with regard to "clinical significance"
2.5	Failure to maintain distinctions between different kinds of outcomes
	2.51 <i>Two logically distinct meanings of the notion of "outcome"</i>
	2.52 Different sources of information about outcome
TR DI S 3.1	OUT INTENSIVE, PSYCHO-SOCIAL, DAY & RESIDENTIAL EATMENT PROGRAMS FOR SEVERELY EMOTIONALLY TURBED CHILDREN & ADOLESCENTS Introduction to this chapter Studies pertaining to the effectiveness of day programs 3.21 Programs for pre-schoolers 3.22 Programs for infant school aged children 3.23 Programs for infant and primary school aged children 3.24 Programs for a broad range of age groups
33	Studies pertaining to the effectiveness of residential programs
2.2	3.31 Programs for infant and primary school aged children
	3.32 Programs for high school aged adolescents
	3.33 Programs for a broad range of age groups
3.4	Studies pertaining to predictors of outcome
	3.41 Child variables
	3.42 Family variables
	3.43 Treatment variables
3.5	Summary
0.0	•
0.0	3.51 Substantive findings 3.52 Methodological problems

3.6 Conclusions with regard to future lines of inquiry in the area 3.61 Pragmatic constraints on the research question and design 3.62 The variables to be studied 3.63 Model of data analysis

CONTENTO

CHAPTER 4. METHOD

4.1 Introduction to this chapter		162
4.2 The pop	oulation under study	162
4.21	The recruitment of participants	163
4.3 Variabl	es and measures	165
4.31	Child variables	166
4.32	Family variables	166
4.33	Treatment variables	172
4.34	Outcome variable	177
4.35	The schedule for the administration of instruments	181
4.4 The cri	teria for inclusion in this study	185
4.5 Researc	ch design and aims	187
4.51	Missing data	191
4.6 Summa	ry of study variables	195
		197
	5. RESULTS OF STATISTICAL ANALYSES OF DATA	
	ction to this chapter	198
	mation of clinical subgroups	198
	or variables across the clinical subgroups	199
	Child socio-demographic variables	201
	Child clinical variables	201
	Family socio-demographic variables	204
	Family clinical variables	207
5.35	Treatment variables	210
5.36	Summary of differences in predictor variables across the	211
	subgroups	218
5.4 Outcon		
	Overall outcome 6 and 12 months after discharge	220
5.42	Outcome across the subgroups 6 and 12 months post-	220
	discharge	226
	ors of outcome	
	Strategy	232
	Predictors of 6 month outcome	232
	Predictors of 12 month outcome	236
5.54	Summary	238
		240
	6. DISCUSSION OF RESULTS	2.12
	ction to this chapter	243
	tment differences across the subgroups	243
6.3 Outcon		244
	Overall outcomes for the study sample	245
	Differences in outcome across the subgroups	245
	ors of outcome	248
	Step-families	252
6.42	Admission to the Unit before or after 1 June 1996	254
		257

CHAPTER 7. CONCLUSIONS

REFERENCES

APPENDICES

А	Approval of study from Royal North Shore Hospital Medical
	Research Ethics Committee
В	Approval of study from Royal North Shore Hospital Medical
	Research Ethics Committee (RADGAC)
С	Child Behavior Checklist
D	Teacher Report Form
E	Family Assessment Device
F	Consent form at registration
G	Consent form at discharge
Н	Calculation of Jacobson's Reliable Change Index (RCI) for the
	Child Behavior Checklist Total Problem Score.
Ι	Details of statistical regression: predictors of outcome 6 months
	post-discharge
J	Details of statistical regression: predictors of outcome 12 months

J Details of statistical regression: predictors of outcome 12 months post-discharge

285

LIST OF TABLES

Table 1. Pre- and post-treatment WRAT scores reported in Grizenko & Sayegh (1990) and Grizenko, Papineau & Sayegh (1993)	103
Table 2. Pre- and post-treatment scores on the Kaufman Test of Educational Achievement: Percentile of academic level (Kotsopoulos, Walker, Beggs & Jones,1996)	108
Table 3. Correlations between change in pre and post treatment Reading scores (Kaufman Test of Educational Achievement) and pre- treatment CELF-R subscores and total score (Kotsopoulos, Walker, Beggs & Jones,1996)	108
Table 4. Evaluative studies reporting CBCL Total Problem Scores (except Internalizing and Externalizing scores where indicated)	144
Table 5. Reliability of the Child Behavior Checklist (Pearson correlation coefficient) (from Achenbach 1991a)	167
Table 6. Reliability of the Teacher's Report Form (Pearson correlation coefficient) (from Achenbach 1991b)	167
Table 7. Clinical cut-offs for externalizing and internalizing scores on theCBCL (from Achenbach, 1991)	170
Table 8. Test-retest reliability on the FAD (Version 3) (from Miller, Epstein, Bishop & Keitner, 1985, p.347)	176
Table 9. The schedule for the administration of rating instruments	186
Table 10. An analysis of the 42 children admitted August 1993 to end July1996 where a "minimum" data set was not obtained.	180
Table 11. The formation of the four subgroups	102
Table 12. Summary of study variables	193
Table 13. The formation of the four clinical subgroups	197
Table 14a. Differences in distribution of gender across the four subgroups (chi square)	199 201
Table 14b. Differences in age across the four subgroups (one way ANOVA)	203
Table 14c. Differences in the externalizing versus internalizing index across the four subgroups (one way ANOVA)	205

Table 14d. Differences in distribution of the diagnosis of psychosis acrossthe four subgroups (chi square)	206
Table 14e. Differences in family socio-economic status (Daniel's scale of prestige) across the four subgroups (one way ANOVA)	207
Table 14f. Differences in distribution of family structure across the four subgroups: chi square	209
Table 14g. Differences in general functioning scale of the Family Assessment Device (Version III) across the four subgroups: one way ANOVA	211
Table 14h. Differences in length of admission across the four subgroups (months): one way ANOVA	212
Table 14i. Differences in distribution of the program to which the children were admitted across the four subgroups: chi square	213
Table 14j. Differences in proportion of treatment post-June '96 across thefour subgroups: one way ANOVA	216
Table 15. Summary of differences across the subgroups with regard to predictor variables	218
Table 16. Total Behaviour Problem scores (raw) at admission, 6 monthspost-discharge and 12 months post-discharge	220
Table 17. The number of children showing "clinically significant change"between admission and 6 months post-discharge by Jacobson's two-fold criteria	222
Table 18. The number of children showing "clinically significant change"between admission and 12 months post-discharge by Jacobson'stwo-fold criteria	224
Table 19. The number of children showing "clinically significant change" between admission and 6 months post-discharge, and between admission and 12 months post-discharge by Jacobson's two-fold criteria (restricted to the 108 cases where data is available at all three points in time)	225
Table 20. Means and standard deviations of CBCL total problem score at admission, 6 month post-discharge and 12 month post-discharge for the four subgroups	228

Table 21. The number of children in the moderate problem subgroup showing "clinically significant change" by Jacobson's two-fold criteria (restricted to the 108 cases where data is available at all three points in time)	230
Table 22. The number of children in the severe school problem subgroup showing "clinically significant change" by Jacobson's two-fold criteria (restricted to the 108 cases where data is available at all three points in time)	230
Table 23. The number of children in the severe home problem subgroup showing "clinically significant change" by Jacobson's two-fold criteria (restricted to the 108 cases where data is available at all three points in time)	230
Table 24. The number of children in the severe-pervasive problem subgroup showing "clinically significant change" by Jacobson's two-fold criteria (restricted to the 108 cases where data is available at all three points in time)	230
Table 25. Predictors of outcome 6 months after discharge	22.5
Table 26. Predictors of outcome 12 months after discharge	236
Table 27. Predictors of outcome 6 months and 12 months after discharge	239
	242
Table 28. Total Behaviour Problem scores (raw) at admission, 6 months post-discharge and 12 months post-discharge of the severe- pervasive subgroup whose period in admission was prior to 1 June 1996 and after 1 June 1996	259
Table 29. Time line of institutional events February 1987 – September 2001	272

LIST OF FIGURES

Figure	1. Graphic summary of Evaluative studies reporting CBCL Total Problem Scores (except Internalizing and Externalizing scores where indicated)	145
Figure	2. Box plot of parent-reported (CBCL Total Problem Score) and teacher–reported (TRF Total Problem Score) problems for the four subgroups	200
Figure	3. The distribution of the externalizing/internalizing index in the study sample	204
Figure	4. Box plots of CBCL total problem score at admission, 6 month post-discharge and 12 month post-discharge	221
Figure	5. Box plots of CBCL total problem score at admission, 6 month post-discharge and 12 month post-discharge for the four subgroups	229
Figure	6. Graphic summary of evaluative studies reporting CBCL Total Problem Scores (except Internalizing and Externalizing scores where indicated) including the present study	247
Figure	7. Comparison of the results for those in the severe-pervasive subgroup whose treatment took place before June 1996 and those whose treatment took place after June 1996, against other selected studies (CBCL Total Problem Scores, T scores)	260

Abstract

Despite general agreement that severely emotionally disturbed children and adolescents are an "at risk" group, and that ongoing evaluation and research into the effectiveness of services provided for them is important, very little outcome evaluation actually takes place. The absence of well-conducted and appropriately interpreted studies is particularly notable for day or residential treatment programs, which cater for the most severely emotionally disturbed youths.

This thesis outlines the main areas of conceptual, pragmatic and methodological confusion and neglect which impede progress in research in this area. It argues for plurality of data analytic strategies and research designs. It then critically reviews the reported findings about the effectiveness of day and residential treatment in specialist facilities, and the predictors of good outcomes for this treatment type. This review confirms that there is very little to guide practice.

Having argued for the legitimacy of its methods and the necessity to address basic questions, the thesis reports the results of a naturalistic study based on data accumulated during a decade-long evaluative research program taking place at Arndell Child and Adolescent Unit, Sydney. The study addresses the question of what child, family and treatment variables predict outcome for 159 children and adolescents treated at this facility from 1990 to 1999.

Statistically significant results with large effect size were obtained. Among the most disturbed subgroup of forty three children, (a) psychodynamic milieu-based treatment was shown to be more effective than the "empirically-validated" cognitive-behavioural treatment

which superseded it in 1996, and (b) children from step-families showed better outcome than those from other family structures. Furthermore, it was found for the study sample as a whole that severe school-based problem behaviours were associated with a limited trajectory of improvement in home-based problem behaviour.

These results are discussed with regard to implications for treatment, research methodology, policy and further studies.