

Systematic literature review: outcome measures for child and adolescent mental health services

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Abstract

Background Outcome measurement is an important component of health care service evaluation. The aim of this paper is to review child and adolescent mental health outcome measures and identify outcome measurement tools for use in routine clinical practice.

Method A systematic literature review was undertaken, using Medline and Psych Info and supplemented by correspondence with relevant institutions and authorities in the field. The review identifies potential specific outcome measurement tools. These tools are evaluated using the scientific criteria of validity and reliability, responsiveness to change, and appropriateness of each tool's format for use in routine clinical practice.

Results Three broad categories of outcome are identified: population outcomes, specific outcome and performance indicators. Nineteen specific outcome measurement tools are short-listed and compared in detail. No single tool is suitable for use as a comprehensive outcome measurement tool in routine clinical practice.

Conclusions A combination of some of the tools short-listed will cover all the necessary outcome items. However, the increase in assessment time will reduce clinical usefulness. Further research is needed to modify or create appropriate outcome measurement tools for use in routine clinical practice.

Keywords: child and adolescent psychiatry, mental health, outcomes, audit.

Introduction

Outcomes measure the result of a health care intervention.^{1,2} It is the change in a patient's current and future health status that can be attributed to antecedent health care. If a broad definition of health is used, such as the World Health Organization definition of total physical, mental and social well-being, then improvements in social and psychological functioning are included.

The need to measure health care has been brought about by many changes over the past 20 years. The

increasing costs of care have heightened the importance of assessing efficacy and cost effectiveness. A shift in the aims of medical interventions, from mostly curative to emphasizing the importance of improving quality of life and preventing illness, means that quality of care and quality of life must now be considered when assessing health outcomes. Interest in the development and use of outcomes has recently intensified owing to pressure from the British Government and local health commissioning agencies for health services research and audit, to ensure that the services purchased are effective and good value for money.^{3,4} This has led to the establishment of a national outcomes clearing house,¹ and the testing of outcomes in clinical audit and in purchasing.^{2,5,6} In this paper we consider the development of outcome measures for one area of care – child and adolescent mental health.

Epidemiology of child and adolescent mental health problems

Psychiatric disorders or handicapping abnormalities of emotions, behaviour or relationships are present in a substantial proportion (10–20 per cent) of children and adolescents in the general population. However, the majority of children are not under the care of psychiatric services.^{7,8} Those referred tend to be the

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more severely affected children in families of multiple psychosocial and family stress (e.g. unemployment and low socioeconomic status, marital and mental health problems in parents, low extended family support).⁹

Co-morbidity is common in child and adolescent psychiatry. Mixed conduct emotional disorders are common in the general population and it is not uncommon for children or adolescents with hyperkinetic or depressive disorders to have co-morbid conduct and/or anxiety disorder.^{7,10}

Services

Child mental health services operate from a range of settings. The more common services include child psychiatric units in hospital out-patient departments, community child guidance services, and community child and family consultation services. There are also a small number of day units and in-patient units (often supra-district or regional).¹¹

Child psychiatric services are usually based on the work of multi-disciplinary teams with a range of professionals including child psychiatrists, psychologists, psychotherapists, social workers, specialist nurses and play therapists. Treatments at clinics range from psychological to physical. Because of the close link between child psychiatric problems and difficulties in areas such as education and social environment, consultation with other relevant professionals is often a feature of treatment.¹¹⁻¹³

Measuring outcome

Measurement of outcome for children referred to child psychiatric clinics needs to include improvement in child symptomatology. However, a meaningful assessment must also take into account the complex interactions between the patient and family, and medical, educational and social factors which may have contributed to the referral.

Measurement tools which assess the mental health of children and adolescents have been available for many years. These have been used to identify cases and measure change in research trials. Evaluations of these tools for their use in research studies have been published.¹⁴⁻¹⁹ However, no review has considered whether and which of the tools would be suitable for use as outcome measures in routine clinical practice. This paper aims to review child and adolescent mental health outcomes and determine which tools might be suitable for use in routine clinical practice.

Method

A literature search was done using Medline and Psych Info. The topics under consideration were: general

outcome indicators, child and adolescent mental health outcome indicators, and specific child and adolescent measurement tools. The keywords used were: adolescence, adolescent, adolescent psychiatric assessment, adolescent psychiatry, adolescent psychology, audit, behaviour checklist, behaviour problem checklist, child and adolescent psychiatric assessment, child assessment schedule, child behaviour checklist, child behaviour screening questionnaire, child guidance clinics, child psychiatric assessment, child psychiatry, child psychology, child psychotherapy, children quality of life, children's global assessment schedule, Conners parent or teacher rating scale, Devereux child behaviour rating scale, diagnostic interview schedule for children, Harter self-esteem, health care interview schedule for children, kiddie SADS, measurement, mental, mental health programme evaluation, modified Harter self-esteem, outcome, pre-school behaviour checklist, pre-school behaviour questionnaire, process assessment, psychotherapeutic outcomes, Rutter questionnaire, Rutter scale, short Conners parent or teacher rating scale, treatment effectiveness evaluation, treatment outcomes.

Further material was found in the personal libraries of individual clinicians and by writing to the authors of various tools. In addition, the project listings of the UK Clearing House on Health Outcomes¹ provided information about current outcome projects in paediatric and adolescent mental health.

Each measure identified throughout this search was reviewed according to the scientific criteria of validity and reliability, appropriateness of each measure's format, responsiveness to change, and whether the measure can be used to evaluate child and adolescent mental health outcomes in routine clinical practice.

Results

A total of 75 papers were reviewed: three papers discussed child and adolescent mental health population indicators; three papers, outcome measurement of child and adolescent mental health services; and 69 papers, specific child and adolescent measurement tools. Three broad categories of outcome were identified: population outcomes, case-specific outcomes, and performance indicators. These are considered below.

Population outcomes

Changes in the health status of a population can be referred to as population outcome indicators. In child and adolescent mental health, the outcome may be social as well as clinical.²⁰ Population outcome measures could include a reduction in the prevalence

of mental health problems,^{2,21} suicide and parasuicide,^{2,21} delinquency,² homelessness²¹ and school absenteeism.^{22,23}

Specific outcomes

To evaluate the outcome of an individual case, the following areas should be considered: (1) case characteristics; (2) clinical change; (3) compliance and satisfaction (of patient, carer or carers, and referrers); (4) met and unmet needs.²⁴ Assessing need is particularly relevant to more complex cases with poor clinical improvement, where it is important to know how the child or adolescent is coping with continuing difficulties.

Influences on outcomes: case characteristics

To meaningfully rate the success of an intervention, the case characteristics and their relationship to predicted outcome must first be considered. Assessment of case characteristics involves considering the case type (diagnosis), case severity (degree of disability) and case complexity (other related factors that might contribute to the final outcome). Each of these areas has the ability to influence the effectiveness of an intervention.²⁴

Case type or diagnosis is important, as different conditions have different prognosis. For example, emotional disorders tend to be shorter lived and show a better response to treatment than conduct disorders. Autism is a continuing developmental disorder whereas schizophrenia is likely to fluctuate.

Case severity and degree of associated disability refer to the fact that the same condition may lead to very different degrees of handicap. The degree of handicap from an anxiety disorder with separation anxiety may range from preoccupation about separations with impaired sleep and concentration, through reluctance to separate or reluctance to go to school, to total school refusal.

Case complexity considers associated parental, family, medical, educational and social factors which may have an important influence on the ability of clinics to provide treatment. They would include: (1) parental attitude to treatment and motivation for change; (2) parental health problems and social factors adversely influencing the parents' ability to provide the necessary safety, care and emotional atmosphere as well as controls for the child's emotional and behavioural well-being; (3) the presence of handicap from physical and developmental problems in the child; (4) the presence of co-morbidity; (5) the number of other professionals involved with the child and his or her family. Sometimes these factors must become

the focus of intervention before symptomatic treatment can take place.

By evaluating the case characteristics the clinician is able to make a prediction about the expected outcome and compare this with the observed outcome. This process is particularly relevant when assessing the outcomes of a heterogeneous group with an array of potential outcomes, as is the case in child and adolescent mental health.²⁴

Specific outcome measures

The three main categories of specific outcome measures are shown in Fig. 1. The majority of outcome measurement tools found focus on aspects of clinical change. However, with such a heterogeneous group of clients where outcomes are extremely variable, measuring compliance, satisfaction, and met and unmet need is important.

To be useful to clinicians in their routine clinical practice, measurement tools need to be easy and quick to complete. It is important that information is collected from the relevant sources. Ideally, the tool should obtain information from the parent or parents, child or adolescent, and teacher or teachers. Children and adolescents are able to respond to direct questions about their mental state, and the parent's report is not interchangeable with the child's or adolescent's report.¹⁵ Teachers' views are also important, as they can provide valuable information about the behaviour of the child or adolescent at school and social adjustment.

A total of 46 specific outcome measurement tools were identified^{10,14-20,24-84} and a short-list of 19 are reviewed. These tools were chosen according to their

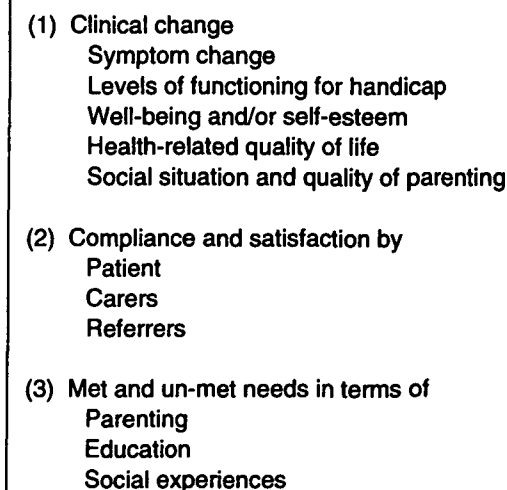
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- (1) Clinical change
 - Symptom change
 - Levels of functioning for handicap
 - Well-being and/or self-esteem
 - Health-related quality of life
 - Social situation and quality of parenting
 - (2) Compliance and satisfaction by
 - Patient
 - Carers
 - Referrers
 - (3) Met and un-met needs in terms of
 - Parenting
 - Education
 - Social experiences

FIGURE 1 Specific outcome measures.

content, validity, reliability, format and time taken to complete. All but two tools – ‘A proposed core data set for child and adolescent psychology and psychiatric services’ (Association of Child Psychology and Psychiatry; ACPP)²⁴ and the ‘Health of the Nation Outcome Scale for Children and Adolescents’ (HoNOSCA) based on Wing *et al.*⁸⁴ – have adequate reliability and validity for the purposes developed. The validity and reliability of ACPP and HoNOSCA have not yet been tested. Table 1 (symptom questionnaires), Table 2 (symptom interview schedules) and Table 3 (broader outcome measures) summarize their content.

Apart from the ACPP and HoNOSCA (Table 3), none of the tools were designed to be used in routine clinical practice. Many of the tools are only concerned with recognizing and diagnosing a problem. Others have been used to study the effectiveness of a specific intervention.

Performance indicators

If it is not possible to directly assess outcome, then assessing performance indicators can provide information on probable outcomes. This can be done by looking at a service’s structure (e.g. buildings, equipment, staffing), processes (e.g. admission and re-admission rates, length of hospital stay, number of consultations, therapies used, quality of case notes, efficiency of referral processing, waiting times) and output (e.g. discharge rates, number of referrals).^{85,86}

Discussion

Population outcome indicators

There are difficulties with using the proposed population outcome indicators. Many of the indicators are likely to have inadequate specificity or sensitivity. For example, delinquency, school absenteeism and homelessness are not necessarily caused by a mental health problem,²³ and not all mental health problems lead to suicide and parasuicide. A child and adolescent mental health unit sees only a small portion of the total population morbidity.⁸⁷ Therefore, it is unlikely that population outcome indicators will accurately reflect the performance of a child and adolescent mental health unit.

However, from a public health perspective, it would be useful to explore population outcome indicators, and more research is needed. How much child and adolescent mental health interventions can influence these indicators is also an important question.

Specific outcome measures

Only two outcome measurement tools, the ACPP and HoNOSCA, come close to covering all the important

areas. The advantage of the ACPP and HoNOSCA is their ability to compare the outcomes of a heterogeneous group. The main disadvantage is that neither tool has been subjected to formal testing of its validity, reliability and sensitivity to change. Until these are known, more comprehensive, objective data should be collected, through the use of supplementary tools.

‘The Children’s Global Assessment Scale’ (addressing case severity or handicap) together with symptomatic or behavioural questionnaires such as the longer, more comprehensive, ‘Child Behaviour Checklist’ in combination with measures of self-esteem such as the ‘Modified Harter’s Self-Esteem Questionnaire’ and the ‘Children’s Quality of Life’, could be used for a comprehensive assessment of changes in clinical outcomes of children and adolescents. The ‘Pre-school Behaviour Questionnaire’ could be used for younger children. Unfortunately, there are no measures available to assess pre-schoolers’ self-esteem or quality of life.

The time taken to complete a measure plays a large part in a clinician’s acceptance of it. As the task of getting the teacher or teachers to complete a measure will be time consuming, there is a good argument for omitting the teacher assessment, unless it is clinically indicated. The Conners parent and teacher rating scales – revised, or the Rutter A2 parent and teacher rating scales, could be used to supplement or as an alternative to some of the above measures.

In assessing outcome it is important to consider ‘sleepier effects’,⁸⁸ whereby the beneficial effects of some psychiatric treatments have been shown to continue after treatment is terminated. In the clinic setting, the presence of sleeper effects will depend on interventions having achieved the necessary improvements to meet the child’s needs, including stress reductions and changes in children’s attitudes and self-concept. Therefore, measurement may also require long-term follow-up of interventions.

Performance indicators

Performance indicators are indirect measures of the quality of care, and their value depends on the nature of their influence on care.⁸⁵ Structure or process are relevant, because they increase or decrease the probability of a good outcome. However, they are only valuable as a proxy for outcome, once the elements of structure or process are known to have a clear relationship with the desired changes in outcome.⁸⁵ Therefore, if a therapy is proven to be effective in research studies, a good proxy of outcome would be to measure the process of whether that therapy is correctly applied.

TABLE 1 Symptom questionnaires

Scale	Type of scale	Factors assessed	Age (years)	Ability to detect clinical change	No. of items	Time (min)
Behaviour Problem Checklist – revised ^{76–78,83}	Questionnaire: parent, teacher	Identifies and assesses behavioural problems	5–17	Yes	89	15–20
Child behaviour Checklist ^{16,17,33,48,51}	Questionnaire: parent, teacher, child	Identifies behavioural and emotional problems and level of functioning	4–16	Yes	138	15–20
Conners Parent Teacher Rating Scale – revised ^{6,15,19,54,70–72,74}	Questionnaire: parent, teacher	Identifies psychiatric disorders (especially conduct disorders)	3–17	Yes	48 parent 28 teacher	10
Short Conners Parent Teacher Rating Scale ^{38,71}	Questionnaire: parent, teacher	Probably only useful for assessing hyperkinetic problems	3–17	Yes	10 parent 10 teacher	5
Rutter A Questionnaire ⁸²	Questionnaire: mother	Diagnostic tool, assesses emotional and behavioural problems	9–13	Unknown	54	?
Rutter A2 Parent and Teacher Rating Scale ⁸²	Questionnaire: parent, teacher	Screening instrument for behavioural and emotional problems	9–13	Unknown	31 parent 26 teacher	5 min each
Pre-school Behaviour Checklist ⁴⁰	Questionnaire: teacher	Screening for behavioural problems	2–5	Unknown	23	10
Pre-school Behaviour Questionnaire ^{41,45,50}	Questionnaire: parent, teacher	Identifies pre-schoolers at risk for emotional problems	3–6	Probably	30	5–10

TABLE 2 Symptom interview schedules

Scale	Type of scale	Factors assessed	Age (years)	Ability to detect clinical change	No. of items	Time (min)
Behaviour Screening Questionnaire ⁷⁹	Semi-structured interview: parent	Identifies and assesses behavioural problems	3–5	Unknown	12	
Kiddie Schedule for Affective Disorders and Schizophrenia ⁸¹	Semi-structured interview: parent, child	Focuses on affective disorders but identifies most disorders	6–18	Yes	89	15–20
Child Assessment Schedule 16,24,25,30,32,34,35,37,46,47	Semi-structured interview: parent, child	Diagnostic aid (corresponding to DSM diagnosis) and clinical assessment. Used mostly for depression	7–12	Unknown	75	45–60
Diagnostic Interview Schedule for Children ^{17,33,42,43}	Highly structured interview: parent, child	Useful for epidemiological surveys and symptom inventory in clinical research	6–18	Unknown	264	40–80
Child and Adolescent Psychiatric Assessment ¹⁰	Semi-structured interview: parent, child	DSM-III and ICD diagnosis plus psychosocial and symptom intensity	8–16	Unknown	250	45–120
Interview Schedule for Children ⁶⁸	Semi-structured interview (6 month's training): child, parent	So far, only used in out-patient setting. Symptom-based diagnosis, mental state, observed psychopathology, developmental milestones, severity. Two versions: initial assessment and follow-up, plus additional diagnostic addenda	8–17	Probably	242 (plus 22 addenda with up to 20 extra questions to be completed)	240

TABLE 3 Broader outcome measures than symptom questionnaires or interview schedules

Scale	Type of scale	Factors assessed	Age (years)	Ability to detect clinical change	No. of items	Time (min)
Children's Global Assessment Scale ^{27,67}	Scale judged by professional, parent, child	Measures functional adjustment	4–16	Yes	N/A	20–30
Modified Harter Self-Esteem Questionnaire ³⁹	Questionnaire: child	Measures self-esteem and individual components. Modified for use in the UK	8–15	Unknown	36	15
Children Quality of Life ⁸⁰	Questionnaire: parent, child	Measures quality of life: 15 domains including satisfaction, 1 general statement	10–14	Probably	16	10–15
Proposed Health of the Nation Outcome Scale for Children and Adolescents (HoNOSCA) ⁸⁴	Rating scale judged by professional	Multiple outcome measures – behaviour, functional impairment, symptoms, social context	All ages	Unknown	12	5–10
Proposed core data set for child and adolescent psychology and psychiatry – a suggested framework for outcomes (ACPP) ²⁴	Rating scale: child, parent, referrer	Multiple outcome measures – records case characteristics, clinical change, compliance and satisfaction	All ages	Unknown	9	5

Henderson *et al.* have reaffirmed a widely held aim for treatment of any childhood and adolescent disorders, that is, to avoid hospitalization and to use community, out-patient and day case centres.⁸⁹ They suggested using admission and re-admission rates, along with length of hospital stay, as a proxy indicator of overall quality of care. However, as only a small number of children and adolescents with mental health problems are admitted to hospital, this is unlikely to be a sensitive indicator of care for these services.

It is important that performance indicators are thoughtfully implemented in child and adolescent mental health units, otherwise the information may be limited or misleading. For example, simply recording the number of referrals or consultations in a unit is unlikely to accurately represent their workload. This is because one referral often means seeing the patient and family members, both individually and in group sessions, on a number of occasions.⁷⁵ It would be more informative to document also the number of people seen, and the nature of the treatment given, during consultations.

Conclusions

This paper has identified three approaches for measuring child and adolescent mental health outcomes. Unfortunately, none of the approaches has been fully developed or evaluated.

We have focused on the evaluation of clinical change. Most of the measures identified are lengthy and few have been proved to detect clinical change. Further research in the clinical setting is required to establish the usefulness of these measures, pilot shortened forms of the measures, and develop other appropriate measures for assessing case complexity, pre-schoolers' quality of life, patients', carers' and referrers' satisfaction, and met and unmet needs.

A single tool that meets all our criteria would significantly aid the routine measurement clinical outcomes of such a heterogeneous group. The ACPP and HoNOSCA have the potential to adequately measure child and adolescent mental health outcomes in routine clinical practice. However, both tools would require further modification and piloting, formal comparisons with other tools and scientific validation. It may not be possible to modify HoNOSCA for more general clinical use, as its primary aim is to measure the *Health of the nation* mental health target C1.⁹⁰ In this case, one could either modify and test the ACPP or develop another measurement tool.

Finally, it is important to determine how useful the information collected is in assisting the purchasers of health services and the clinicians in their audit.

References

- Bate LM. *Information for the assessment of health outcome indicators: outcome briefing: viewpoints*. Leeds: UK Clearing House on Health Outcomes, 1994.
- Jenkins R. Towards a system of outcome indicators for mental health care. *Br J Psychiat* 1990; **157**: 500–514.
- Black N. The relationship between evaluative research and audit. *J Publ Hlth Med* 1992; **14**(4): 361–366.
- Dowie R. Health services research in the United Kingdom. *J Publ Hlth Med* 1995; **17**(1): 93–97.
- Scharer KM. Developing an outcome audit for a child psychiatric unit. *J Psychosoc Nurs Ment Hlth Serv* 1982; **20**(11): 27–34.
- Nicol AR. Audit in child and adolescent psychiatry. *Arch Dis Child* 1990; **65**: 355–356.
- Rutter M, Tizard J, Whitmore K. *Education, health and behaviour*. London: Longman, 1987.
- Offord DR, Boyle MH, Satzmari P, *et al.* Ontario Child Health Study: II. Six-month prevalence of disorder and rates of service utilisation. *Arch Gen Psychiat* 1987; **44**: 832–836.
- Garralda ME, Bailey D. Child and parental factors related to the referral of children to child psychiatry. *Br J Psychiat* 1988; **153**: 81–89.
- Angold A, Weissman MM, John K, *et al.* Parent and child reports of depressive symptoms. *J Child Psychol Psychiat* 1987; **28**: 901–915.
- Graham PJ. Type of psychiatric treatment. In: Garralda ME, ed. *Managing children with psychiatric problems*. London: BMJ Publishing, 1994.
- Hughes T, Garralda ME, Tylee A. *Child mental health problems*. London: St Mary's CAP, 1994.
- Kurz Z, Thornes R, Wolkind S. *Services for the mental health of children and young people in England and Wales: a national review*. London: Maudsley Hospital, 1994.
- Hodges K, McKnew D, Burbach DJ, Roebuck L. Diagnostic concordance between the Child Assessment Schedule (CAS) and the Schedule for Affective Disorders and Schizophrenia for School-age Children (K-SADS) in an outpatient sample using lay interviewers. *J Am Acad Child Adolesc Psychiat* 1987; **26**: 654–661.
- Hodges K. Structured interviews for assessing children. *Am J Child Psychol Psychiat* 1993; **34**(1): 49–68.
- Verhulst FC, van der Ende J. Assessment of child psychopathology: relationships between different methods, different informants and clinical judgment of severity. *Acta Psychiat Scand* 1991; **84**: 155–159.
- Brunshaw JM, Szatmari P. The agreement between behaviour checklists and structured psychiatric interviews for children. *Can J Psychiat* 1988; **33**: 474–481.
- Bush RM. Follow-up of children treated in psychiatric hospitals: a review of studies. *Am J Psychiat* 1986; **42**(6): 873–877.
- Conners CK. Rating scales for use in drug studies with children. *Psychopharmacol Bull* (special issue, Pharmacotherapy of children) 1973; 24–29.
- Blotcky MJ, Dimperio TL, Gossett JT. Follow-up of children treated in psychiatric hospitals: a review of studies. *Am J Psychiat* 1984; **141**(12): 1499–1507.
- Jenkins R. Outcome indicators of mental health. In: Jenkins R, Griffiths S, eds. *Indicators for mental health in the population*. London: HMSO, 1991.
- Berg I. Absence from school and mental health. *Br J Psychiat* 1992; **161**: 154–166.

- 23 Weitzman M. School absence rates as outcome measures of studies of children with chronic illness. *J Chron Dis* 1986; 39(10): 799–808.
- 24 Berger M, Hill P, Sein E, Thompson M, Verduyn C. *A proposed core data set for child and adolescent psychology and psychiatric services*. London: Association for Child Psychology and Psychiatry, 1993.
- 25 Thompson Jr RJ, Merritt KA, Keith BR, Murphy LB, Johndrow DA. Mother-child agreement on the Child Assessment Schedule with non-referred children: a research note. *J Child Psychol Psychiat* 1993; 34: 813–820.
- 26 Thompson Jr RJ, Merritt KA, Keith BR, Murphy LB, Johndrow DA. The Missouri Children's Behavior Checklist behavioral classification system: a construct validity study with non-referred children. *J Clin Psychol* 1992; 48: 739–743.
- 27 Weissman MM, Warner V, Fendrich M. Applying impairment criteria to children's psychiatric diagnosis. *J Am Acad Child Adolesc Psychiat* 1990; 29: 789–795.
- 28 Cohen NJ, Kolars N, Bradley S. Relation of global ratings of functioning with behaviour and development in delayed and disturbed pre-schoolers. *Can J Psychiat* 1990; 35: 514–518.
- 29 Mayberry W. Self-esteem in children: considerations for measurement and intervention. *Am J Occup Ther* 1990; 44: 729–734.
- 30 Hodges K, Saunders WB, Kashani J, Hamlett K, Thompson RJJ. Internal consistency of DSM-III diagnoses using the symptom scales of the Child Assessment Schedule. *J Am Acad Child Adolesc Psychiat* 1990; 29: 635–641.
- 31 Barrera Jr M, Garrison Jones CV. Properties of the Beck Depression Inventory as a screening instrument for adolescent depression. *J Abnorm Child Psychol* 1988; 16: 263–273.
- 32 Hodges K, Gordon Y, Lennon MP. Parent-child agreement on symptoms assessed via a clinical research interview for children: the Child Assessment Schedule (CAS). *J Child Psychol Psychiat* 1990; 31: 427–436.
- 33 Edelbrock C, Costello AJ. Convergence between statistically derived behaviour problem syndromes and child psychiatric diagnoses. *J Abnorm Child Psychol* 1988; 16: 219–231.
- 34 Target M, Fonagy P. Efficacy of psychoanalysis for children with emotional disorders. *J Am Acad Child Adolesc Psychiat* 1994; 33: 361–371.
- 35 Hodges K, Saunders W. Internal consistency of a diagnostic interview for children: the Child Assessment Schedule. *J Abnorm Child Psychol* 1989; 17: 691–701.
- 36 Alpert Gillis LJ, Connell JP. Gender and sex role influences on children's self-esteem. *J Pers* 1989; 57: 97–114.
- 37 Verhulst FC, Althaus M, Berden GF. The Child Assessment Schedule: parent-child agreement and validity measures. *J Child Psychol Psychiat* 1987; 28: 455–466.
- 38 Holborow O, Berry P. A multinational, cross-cultural perspective on hyperactivity. *Am J Orthopsychiat* 1986; 56: 320–322.
- 39 Hoare P, Elton R, Greer A, Kerley S. The modification and standardisation of the Harter Self Esteem Questionnaire, with Scottish schoolchildren. *Eur Child Adolesc Psychiat* 1993; 2: 19–33.
- 40 McGuire J, Richman N. Screening for behaviour problems in nurseries: the reliability and validity of the Preschool Behaviour Checklist. *J Child Psychol Psychiat* 1986; 27: 7–32.
- 41 Behar LB. The Preschool Behavior Questionnaire. *J Abnorm Child Psychol* 1977; 5: 265–275.
- 42 Costello EJ, Edelbrock CS, Costello AJ. Validity of the NIMH Diagnostic Schedule for Children: a comparison between psychiatric and paediatric referrals. *Child Dev* 1985; 13: 579–595.
- 43 Edelbrock C, Costello AJ, Dulcan MK, Kalas R, Conover NC. Age differences in the reliability of the psychiatric interview of the child. *Child Dev* 1985; 56: 265–275.
- 44 Sorensen JL, Hargreaves WA, Friedlander S. Choosing a global assessment scale to describe the functioning of children (letter). *Arch Gen Psychiat* 1984; 41: 1186.
- 45 Rubin KH, Clark ML. Preschool teachers' ratings of behavioral problems: observational, sociometric, and social-cognitive correlates. *J Abnorm Child Psychol* 1983; 11: 273–285.
- 46 Hodges K, McKnew D, Cytryn L, Stern L, Kilne J. The Child Assessment Schedule (CAS) diagnostic interview: a report on reliability and validity. *J Am Acad Child Psychiat* 1982; 21: 468–473.
- 47 Hodges K, Kline J, Stern L, Cytryn L, McKnew D. The development of a child assessment interview for research and clinical use. *J Abnorm Child Psychol* 1982; 10: 173–189.
- 48 Rey JM, Schrader E, Morris Yates A. Parent-child agreement on children's behaviours reported by the Child Behaviour Checklist (CBCL). *J Adolesc* 1992; 15: 219–230.
- 49 Molloy D, McIlroy WE, Guyatt GH, Lever JA. Validity and reliability of the Dysfunctional Behaviour Rating Instrument. *Acta Psychiat Scand* 1991; 84: 103–106.
- 50 McGuire J, Richman N. Outcome of behaviour problems in the preschool setting. *Child Care Hlth Dev* 1987; 13: 403–414.
- 51 Fombonne E. The Child Behaviour Checklist and the Rutter Parental Questionnaire: a comparison between two screening instruments. *Psychol Med* 1989; 19: 777–785.
- 52 Place M. The relative value of screening instruments in adolescence. *J Adolesc* 1987; 10: 227–240.
- 53 Steinhausen HC, Gobel D. Convergence of parent checklists and child psychiatric diagnoses. *J Abnorm Child Psychol* 1987; 15: 147–151.
- 54 Schachar R, Sandberg S, Rutter M. Agreement between teachers' ratings and observations of hyperactivity, inattentiveness, and defiance. *J Abnorm Child Psychol* 1986; 14: 331–345.
- 55 Berg I, Ellis M, Forsythe I, McGuire R. The relationship between the Rutter A Questionnaire and an interview with mother assessing child psychiatric disturbance among enuretic children. *Psychol Med* 1981; 11: 647–650.
- 56 MacMillan A, Kolvin I, Garside RF, Nicol AR, Leitch IM. Multiple criterion screen for identifying secondary school children with psychiatric disorder: characteristics and efficiency of screen. *Psychol Med* 1980; 10: 265–276.
- 57 Rutter M. A children's behaviour questionnaire for completion by teachers: preliminary findings. *J Child Psychol Psychiat* 1967; 8: 1–11.
- 58 Hendren R. Adolescent psychotherapy research: a practical review. *Am J Psychother* 1993; 47(3): 334–343.
- 59 Place M. The relative value of screening instruments in adolescence. *J Adolesc* 1987; 10: 227–240.
- 60 Steinhausen HC, Gobel D. Convergence of parent checklists and child psychiatric diagnoses. *J Abnorm Child Psychol* 1987; 15: 147–151.

- ⁶¹ Fombonne E. The Child Behaviour Checklist and the Rutter Parental Questionnaire: a comparison between two screening instruments. *Psychol Med* 1989; **19**: 777-785.
- ⁶² Schachar R, Sandberg S, Rutter M. Agreement between teachers' ratings and observations of hyperactivity, inattentiveness and defiance. *J Abnorm Child Psychol* 1986; **14**: 331-345.
- ⁶³ Berg I, Ellis M, Forsythe I, McGuire R. The relationship between the Rutter A Questionnaire and an interview with mother assessing child psychiatric disturbance among enuretic children. *Psychol Med* 1981; **11**: 647-650.
- ⁶⁴ Rutter M. A children's behaviour questionnaire for completion by teachers: preliminary findings. *J Child Psychol Psychiat* 1967; **8**: 1-11.
- ⁶⁵ Graham P, Rutter M. The reliability and validity of the psychiatric assessment of the child: II. Interview with the parent. *Br J Psychiat* 1968; **114**(510): 581-592.
- ⁶⁶ Rutter M, Graham P. The reliability and validity of the psychiatric assessment of the child: I. Interview with the child. *Br J Psychiat* 1968; **114**(510): 563-579.
- ⁶⁷ Bird H, Canino G, Rubio-Stipec JC. Further measures of the psychometric properties of the Children's Global Assessment Scale. *Arch Gen Psychiat* 1987; **44**: 821-824.
- ⁶⁸ Kovacs M. The interview schedule for children (ISC). *Psychopharmacol Bull* 1985; **21**(4): 991-994.
- ⁶⁹ Schaffer D, Gould MS, Brasic J, *et al.* A Children's Global Assessment Scale (CGAS). *Arch Gen Psychiat* 1983; **40**: 1228-1231.
- ⁷⁰ Sprague RL, Sleater EK. Effects of pharmacological agents on learning disorders. *Am J Psychiat* 1973; **20**: 719-735.
- ⁷¹ Conners CK. A teacher rating scale for use in drug studies with children. *Am J Psychiat* 1969; **126**: 884-888.
- ⁷² Conners CK. Symptom patterns in hyperactive, neurotic and normal children. *Child Dev* 1970; **41**: 667-682.
- ⁷³ Kupietz SB, Winsberg B. A behaviour rating scale for assessing improvement in behaviorally deviant children: a preliminary investigation. *Am J Psychiat* 1972; **128**: 1432-1436.
- ⁷⁴ Werry JS, Sprague RL, Cohen MN. Conners teacher rating scale for use in drug studies with children - an empirical study. *J Abnorm Child Psychol* 1975; **3**: 217-229.
- ⁷⁵ Nicol AR. Performance indicators in child and adolescent psychiatry. *Psychiat Bull* 1989; **13**: 94-97.
- ⁷⁶ Quay HC. Measuring dimensions of deviant behaviour: the Behaviour Problem Checklist. *J Abnorm Child Psychol* 1977; **5**: 277-287.
- ⁷⁷ Quay HC. A dimensional approach to behaviour disorder: the Revised Behaviour Problem Checklist. *School Psychol Rev* 1983; **12**: 244-249.
- ⁷⁸ Aman MG, Werry JS. The revised behaviour problem checklist in clinic attenders and non-attenders; age and sex effects. *J Clin Child Psychol* 1984; **13**: 3-237.
- ⁷⁹ Richman N, Graham PJ. Behaviour screening questionnaire for use with three year old children. *J Child Psychol Psychiat* 1971; **12**: 5-33.
- ⁸⁰ Graham P, Flynn D, Stevenson J. A new measure of health related quality of life for children: preliminary findings. *J Psychol Hlth* (in press).
- ⁸¹ Chambers WJ, Puig-Antich J, Hirsch M, *et al.* The assessment of affective disorders in children and adolescents by semi-structured interview: test-retest reliability of the schedule for affective disorders and schizophrenia for school aged children, present episode version. *Arch Gen Psychiat* 1985; **42**: 696-702.
- ⁸² Rutter M, Tizard J, Whitmore K. *Education, health and behaviour*. London: Longman, 1970.
- ⁸³ Aman MG, Werry JS, Fitzpatrick J, Lowe M, Waters J. Factor structure and norms for the revised behaviour problem checklist in New Zealand children. *Aust NZ J Psychiat* 1983; **17**: 354-360.
- ⁸⁴ Wing J. Measuring mental health outcomes: a perspective from the Royal College of Psychiatrists. In: Delamothé T, ed. *Outcomes into clinical practice*. London: BMJ Publishing, 1994: 147-152.
- ⁸⁵ Donabedian A. *Explorations in quality assessment and monitoring. Vol. 1. The definition of quality and approaches to its assessment*. Michigan: Health Administration Press.
- ⁸⁶ Subotsky F. The organisation of psychiatric treatment for children. In: Garralda ME, ed. *Managing children with psychiatric problems*. London: BMJ Publishing, 1993.
- ⁸⁷ Garralda ME. Primary care psychiatry. In: Rutter M, Taylor E, Hersov L, eds. *Child and adolescent psychiatry*. Oxford: Blackwell, 1994.
- ⁸⁸ Reid S, Kolvin I. Group psychotherapy in children and adolescents. In: Garralda ME, ed. *Managing children with psychiatric problems*. London: BMJ Publishing, 1993.
- ⁸⁹ Henderson J, Goldacre MJ, Fairweather J, Seagroatt V. Time spent in hospital by children as a health indicator: inter-district comparisons. *J Publ Hlth Med* 1992; **14**(1): 35-38.
- ⁹⁰ Department of Health. *The health of the nation: a summary of the strategy for health in England*. London: HMSO, 1992.

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