



MINDFUL - Mental health information and determinants for the European level

Final technical report
Annex 1: Childhood determinants of adult
mental illness

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1. Introduction.

1.1 Background

Mental health research, in seeking possible causes of serious mental illness in adults, has focussed mainly upon proximal factors in adulthood, necessarily using cross-sectional or short follow-up data, and commonly recorded demographic information. Such retrospective data have commonly been from relatively small samples or clinical series not representative of the general population. What has emerged is an understanding of the 'cause' of serious mental illness as complex, varied and multi-factoral, encompassing inherited elements and both childhood and adult experience. Some factors are already accepted as risk factors for specific forms of mental illness or mental illness in general, such as familial genes, relative poverty, extreme life-events, poor education, and long-term unemployment.

It is more difficult to relate childhood experience to adult mental illness because of the time interval involved. However, there are several major birth-cohort studies, some of very large national samples, which provide potential for firm linkage between observations made in childhood and later clearly defined mental illness. Sadly, many relevant data were not considered important at the time and were not collected, but there is still substantial potential in their person-based data collected over many years.

Some variables associated with an increased risk of later mental illness, are conceptually not *determinants*, that is *causal factors* but are *precursors*, *early manifestations* of mental illness, or *indicators* of broader, less specific problems. Some true *determinants* may require later factors for expression; some may contribute to increased risk only in combination with others.

Thus, causal processes combine personal vulnerability and precipitating factors. Vulnerability is the susceptibility of the person to react in certain ways to somatic, inter-personal and socio-economic stresses he or she will face throughout life; it will itself be modified throughout child and adult life. This study aimed to clarify the relationships between the many factors involved as far as was currently possible from the evidence available from large-scale longitudinal studies.

1.2. Activities.

1.2.1. Five meetings were held to co-ordinate projects and discuss aims and methods with all MINDFUL project leaders in Helsinki (March 2004; June 2005), Barcelona (November, 2004), Vienna (November, 2005), and Paris (June 2006).

1.2.2. Since the aims of this project were primarily to review the evidence in the published literature, there was little purpose to be served by formal meetings. However, it was essential to consult those currently in charge of, and researching longitudinal studies, important to discuss issues with those heavily represented in the literature, and helpful to seek advice from experts in the field.

Telephone and e-mail consultations throughout the project period with managers of studies and principle researchers and authors.

Many individual meetings with researchers and experts in the context of the four-day international meeting on Psychiatric Epidemiology in Bristol, which focussed upon longitudinal studies (September 2004).

Meetings by Prof. Fryers with researchers concerned with several Finnish cohort studies (November 2005).

1.2.3. We were concerned to use recent evidence, but also, if possible, to analyse particularly interesting data from British Birth Cohort Studies in collaboration with our partner, Prof. Sarah Stewart-Brown of Warwick University.

Meetings with her and colleagues in Leicester (September 2004) and Warwick (May & June, 2005).

Practical collaboration in analysis with our statistics colleagues in Leicester (June-August 2006).

1.2.4. We were concerned to make our findings as practical as possible, and to this end consulted many experts, and, after due preparation, met with our five European partners (representing the Czech Republic, Finland, Italy, Spain/Netherlands and the UK) to discuss the varying social, organisational and political contexts which necessarily constrain preventive action.

Many individual meetings with researchers and experts in preventive intervention and its evaluation by Prof Brugha during extended professional visits to Australia and the USA.

Meeting of European partners in Vienna (18th November, 2005)

2. Methods.

The aim of this study, was to review the evidence currently available linking childhood factors to the frequency of mental illness in adults. This would largely use evidence from prospective cohort studies, would focus mainly on factors that might be amenable to individual or population intervention to prevent mental disorder and promote mental health, and would have an emphasis on relevance to European populations.

2.1 Literature Review.

Literature searches using key-words have been greatly facilitated in recent years by computer-accessed data bases, but searching is difficult and inefficient for multi-disciplinary topics in which key-words are ambiguously and variably defined, as in this project. Following a scoping review, therefore, it was necessary to perform multiple searches using a variety of key-words, and accessing several data banks relating to all medical and social sciences. The following table describes those used:

<i>Database</i>	<i>Date Range</i>	<i>Search Date</i>	<i>Hits.</i>	<i>Filename</i>	<i>BRS</i>
Medline (ovid)	1966-	6/10/05	873	endnotemedline.txt	endnotetom
PsycInfo (Ebsco)	1887-	12/10/05	276	ebsco 1 2 3 & 4	3endnote
Embase (Ovid)	1980-	6/10/05	472	endnoteembase.txt	endnotetom
Sci citation index	1970-	11/06/05	294	sci9905.txt sci8698	2endnote
Soc Sci Cit index	1970-95 1996-05	12/10/05	72 365	ssci197095.txt ssci9605.txt	3endnote
Assia (CSA)	1965-	11/10/05	57	assia.txt	2endnote
Cochrane		12/10/05	1 4	cochrane sys reviews central	3endnote

This produced 2,414 references, mostly with abstracts for review, from which to select those which appeared to offer possible relevance to the current project. These were supplemented from two other sources. First, the printed and internet information provided by the well-known major cohort studies, searches by names of predominant researchers on each cohort, and consultations with researchers currently exploiting them. Second, following up chains of references from papers obtained to find yet more papers for review. In total, more than 2,500 abstracts were reviewed.

From these sources, papers for full evaluation were selected in four groups: 52 were reviews of relevant topics; 155 related to particular prospective studies, our main focus; 83 papers related to retrospective studies, (especially very large samples) which might provide additional evidence; 13 which were concerned with preventive programmes, including some evaluations. Approximately 250 selected papers were obtained and read, and relevant data extracted and collated in relation to the ten variables discussed below, and the evidence of association with adult psychiatric disorder evaluated.

2.2 Analysis of original cohort data.

The major birth cohorts inevitably contain un-exploited data of great interest to this study, but access is not easily or quickly obtained. In collaboration with one of our project partners, we present additional evidence relating to parenting, from two analyses of data from the 1946, 1958 and 1970 British birth cohorts, using the most up-to-date data now available. The 1946 and 1958 cohorts used retrospective self-reports on earlier mal-treatment and poor relationships with parents. In the 1970 cohort various aspects of parent-child relationships were collected at age 16. The 1946 cohort measured psychiatric symptoms in adulthood with the Psychiatric Symptom Frequency scale (PSF). The 1958 cohort used the Malaise Inventory (MI) at age 33 and 42 and also the General

Health Questionnaire (GHQ12) at age 42. The 1970 cohort used the MI at age 26 and both MI and GHQ12 at age 30.

2.3 Contextualising prevention.

Because of our emphasis on practicable implications for preventive interventions specifically in a European context, we undertook to explore some of the socio-medical contexts in European populations through our project partners. In a meeting in Vienna in November 2005, they were asked to reflect upon the potential for, and obstacles to preventive action with regard to four determinants of mental illness taking into account political, general cultural, and service provision contexts within their own country. The four determinants had emerged from the literature as important factors: child neglect or abuse; inadequate quality of parenting; single parent family structure; school failure or drop-out.

With one of our partners, Prof. Stewart-Brown of Warwick, UK, we have had substantial consultations concerning appropriate determinants and outcomes from the particular perspective of intervention studies, and have undertaken consultations with colleagues in Australia and the USA known to be most active in developing and formally evaluating interventions.

3. Results.

3.1 Literature Review.

3.1.1. Psychological disturbance and psychiatric illness in childhood.

This is a well-established precursor of adult psychiatric disorder. There is strong evidence of continuity of morbidity from childhood or adolescence into adult life. For adolescents with persistent depression, the increased risk of adult persistent depression may be over ten times. Children's mental health problems should be identified and treated for their own sake, not only to prevent later disorder.

3.1.2. Genetic contributions to psychiatric disorder.

Genetic contributions largely confer increased vulnerability or resilience to stressors throughout life. They are important in psychoses, especially schizophreniform disorders. The life-time risk of psychosis with schizophrenia in one parent is probably about 10%, compared with 1% for the general population.

3.1.3. Neurological deviance in childhood; brain damage and disorder.

There is very strong evidence for demonstrable brain damage or disorder, incurred before, during or soon after birth, being associated with an increased risk of psychosis, possibly as much as five times, and it is likely to be a prime cause. Damage may arise also in CNS infections. There is no evidence of similar associations with anxiety and depression.

3.1.4. Features of Personality; Neuroticism.

Neuroticism, measured using standard instruments, has been commonly found as a precursor of adult psychiatric symptoms and disorder, but in a very non-specific way. It may be an indicator of vulnerability and poor coping skills, or represent early manifestations of the disorder.

3.1.5. Behaviour in childhood and adolescence.

Behaviour cannot readily be separated from other factors either conceptually or operationally, but inattention and hyperactivity, withdrawn, deviant, aggressive, anti-social and disruptive behaviour, consistently show associations with later depression and anxiety, as well as later delinquent and criminal behaviour. Abnormal behaviour may also provoke more negative life events which are also associated with later anxiety and depression. Alcohol and other drug abuse is also related. Evidence now links cannabis use in childhood and adolescence with later psychosis, perhaps doubling the risk.

3.1.6. Poor school performance and educational achievement.

Poor school performance and educational achievement are known to be associated with adult anxiety and depression, with an increased risk of probably twice or three times, and this is confirmed by cohort studies. Rather than a primary causal factor, it is likely to represent a late manifestation of a pre-existing higher risk, but may also contribute to later mental health problems. Difficult and deviant behaviour, neurological deficits, and childhood mental health problems will have an impact on school performance and achievements, and these may mediate a higher risk.

3.1.7. Childhood adversity; life events; multiple disadvantage.

Adverse situations and negative life events include many different types of experience, provoking different responses, but few have been measured and studied and generalisation is inescapable. However, it is possible to say that a wide range of adverse experiences in childhood have been shown to increase the risk of psychiatric disorder in adulthood, probably about 2-3 times. More importantly, it is found that children experiencing multiple adversities have an increased risk of around three times, for anxiety and depression, suicidal behaviour and admission to hospital for serious psychiatric disorder. The most disadvantaged children may have a greatly increased risk compared with the least disadvantaged children. However, intervention to diminish childhood adversity, poverty, and family dysfunction is justified in its own right!

3.1.8. Child abuse, neglect and mal-treatment.

Child abuse is difficult to measure and study; figures suggest that overall abuse before age 18 may involve at least 15% of children, and contact sexual abuse at least 10% in girls and 3% in boys, but the reality could be greater. Serious abuse

is associated with serious later psychiatric disorder, as well as personality disorders, self-destructive and violent behaviour, physical illness, teenage pregnancy, and problems raising their own children. Risks may be very high for proven cases, but estimates are problematic and very variable.

3.1.9. Parenting and parent-child relationships.

Parenting style and quality has only recently been subject to much study, and measures are limited. Most studies focus on degrees of care and control by parents, data being retrospective from adolescents or adults. Poor parenting, in particular low levels of care, and/or high levels of control, does appear to be associated with a higher risk of depression and anxiety in adults; the increased risk may be between times 1.5 and 3. There is also evidence that high levels of care and low control are associated with lower risk of later mental health problems. Evidence also links parenting style and quality with social behaviour and capacity for relationships, including capacity for parenting their own children.

3.1.10. Divorce and separation of parents; disrupted and dysfunctional families.

Divorce cannot stand alone as a factor affecting children. It is often preceded by separation, will often be the culmination of inter-parental conflict, and results in a non-optimal family situation for the child. In all periods of childhood and adolescence, divorce or separation of parents usually emerges strongly as a factor associated with later anxiety and depression, anti-social behaviour and other outcomes, but evidence suggests that the prior inter-parental conflict may be a more important determinant. Cohort data suggest an increased risk of depression in early adult life of about times 2, usually greater in women, and increased by own divorce as adults. Overall, research shows none of these associations with the death of a parent.

3.2 Parenting: analysis of data from UK 1946, 1959 & 1970 National Birth Cohorts. (Partner: S Stewart-Brown; fully reported elsewhere)

Results: There was remarkable consistency in the results for all three cohorts and at all ages examined. Poor relationships with either father or mother at age 16 progressively predicted mental health problems at all ages. Positive good relationships with parents predicted lower than average mental health problems; high levels of 'care' reported by children, and low levels of 'control', were associated with fewer mental health problems, but low levels of 'care' and high levels of 'control' were associated with more mental health problems, in adults up to early middle-age.

Conclusion: Children's perceptions of their relationship with their parents are predictive of mental health in adulthood in all three cohorts. This is independent of social class and of mental health at the time of measuring parental relationship. Abuse and neglect had a four-fold effect, but lesser experiences also had an effect. Given the longitudinal nature of the three cohorts, there is a

strong presumption of a causal relationship: parent-child relationships are important determinants of adult mental health.

3.3 Contextualising Prevention.

Our five partners in the project each prepared materials relating to the social, cultural and political context of actual or potential preventive and promotion programmes in various countries of Europe. Key issues and common barriers were identified and discussed, including the following important points.

3.3.1. Child mental health problems are already clearly established as common precursors of adult mental health problems, with demonstrable continuity of morbidity in many cases. Identification and treatment of problems in children are important in their own right and need to be taken more seriously, needing more resources throughout Europe.

3.3.2. Prevention, promotion and early identification are generally low political and professional priorities, and resources are low. Information is usually poor and what is known is not widely appreciated.

3.3.3. Poor parenting underlies child abuse and neglect, much school failure, many poor relationships and mental health problems. There is some experience of programmes to improve parenting, but not much and it is not well known.

3.3.4. Programmes are needed in health, education, welfare, and justice systems. Bureaucracy, vertical rather than horizontal (co-operative) organisation of services, and funding competition with other programmes are important barriers.

3.3.5. The voluntary sector, (NGOs; volunteers) with high motivation and flexibility of management, could be used to greater effect, but needs long-term funding.

4. Research Conclusions and Recommendations.

4.1. In spite of methodological and funding difficulties, longitudinal, and especially long-term cohort studies have provided a great deal of evidence relating childhood factors to adult psychiatric disorder. Given the variety of studies, methods and populations, the evidence for generalisable associations inevitably remains incomplete, and most conclusions are tentative and provisional. Very great potential remains but is dependent upon future funding, which is likely to be the best research investment available in this field.

4.2. The most clearly established association is between mental health problems / psychological disturbance in childhood and adolescence, and mental health problems / psychiatric disorder in adulthood; in many cases this can be interpreted as continuity of morbidity. Early intervention by identifying and treating

childhood problems seriously and thoroughly is neglected and needs much greater recognition and action.

4.3. There are heritable genetic contributions to psychosis, usually requiring later factors for expression. There may also be genetic contributions to vulnerability and resilience which affect life-time ability to resist and cope with stress. Brain damage or disorder caused before, during or soon after birth is associated with seriously increased risk of recurrent psychiatric disorder, which also may represent an increased vulnerability. Prevention of such damage is already a high obstetric and paediatric priority.

4.4. Personality features, especially neuroticism, deviant child behaviour, and poor school performance appear to be important indicators of children vulnerable to stress, or revealing precursors of psychiatric disorder, possibly related to genetic factors or CNS damage. Early identification may permit ameliorative measures.

4.5. There is clear evidence that serious childhood adversity increases the risk of recurrent psychiatric disorder throughout life. The most serious is probably child abuse, especially child sexual abuse the effects of which are undoubtedly serious in many individuals. Parental conflict leading to divorce or separation, and poor parenting more generally, appear to be important, but the latter is difficult to isolate from other intra-family factors.

Counselling, support and treatment, particularly cognitive behaviour therapy for affected children can be effective in reducing the many serious long-term consequences, but is not sufficiently available. Prevention of child abuse should be a high priority; it is not easy, and requires new commitment and new thinking, politically as well as professionally, if present and future generations of children are to be adequately protected.

Divorce or separation is an indicator of high risk status for children, and may be a key point for intervention, but earlier intervention in family conflict situations would be a preferred option where possible. Assistance in parenting in vulnerable families would seem a sensible and important strategy, even in the light of current knowledge. There are already evaluated intervention studies.

4.6. Multiple adversity has strong evidence as a cause of many serious social and psycho-social consequences affecting individuals, families and communities, and is one of the most potentially preventable causes of psychiatric disorder throughout life. It is probably cumulative and children with the highest levels of multiple adversity should be a very high priority for early identification and relief.

5. Implications for Indicators, and Recommendations.

5.1. Here we discuss only issues arising out of the present review; so, for example, children in conflict zones or as refugees are not covered. Where evidence is lacking or ambiguous in the longitudinal studies, such as for drug

abuse, we make no suggestions. However, there are several possibilities for useful indicators reflecting probable childhood determinants of mental illness.

5.2. *Indicator: Damage to the CNS:* The vulnerability of children with early clinical evidence of brain damage is an important factor. In many countries there should be good records of birth including APGAR scores, anoxia, etc, and the findings of neurological examination in the early years.

5.3. *Indicator: Neurological Vulnerability.* Personality features, neurological deviance, child behaviour and school performance can be grouped to represent increased vulnerability to serious mental disorder. The Strengths and Difficulties Questionnaire (SDQ) has been used in the UK National Children's Survey and in the WHO World Mental Health Survey (WMH). It is completed by teachers and parents, and could be applied widely.

5.4. *Indicator: Quality of Parenting.* The importance of parenting suggests the use of the Parental Bonding Instrument (PBI), a well-trying instrument used in the UK 1946 and 1970 birth cohorts, the Victoria (Australia) adolescent cohort, ESEMED and in a 1/25 sample of the WMH population. There is some overlap with life events as it captures parental abuse and neglect.

5.5. *Indicator: Multiple Adversities.* The prominence of 'multiple adversities' as a determinant and its progressive, cumulative nature would suggest an inventory of adverse child events and situations. A child life-events questionnaire was used in the UK National Children's Survey, but it is for parents about their children and cannot capture a full childhood experience; it does not attempt to capture child abuse or neglect. The adult List of Threatening Experiences (LTE) questionnaire has been used down to age 16 and could probably be used from age 14, but it has limited coverage of experience in childhood (Eg it does not ask about parental divorce). However, it could be developed, perhaps adding a specific section relating to children's adverse life events and circumstances, using, perhaps, a list of adversities such as that used in the analysis of USA NCS data (Kessler et al, 1997). Further research could be justified.

5.6. *Indicator: Parental Separation or Divorce.* Divorce statistics will be widely available but cannot capture separation of now common non-married parents. Most countries will not have divorce statistics recording children still present in the home; this could be pressed for to create an important indicator.

5.7. *Indicator: Child Abuse and Neglect.* Reliable data on the full range of child abuse and neglect are almost impossible to obtain, but recorded crimes against children, and children removed from parental care for abuse or neglect will often be available. Different definitions and data collection systems may prejudice comparisons, but temporal changes within countries could be monitored. This is an area of high priority for new thinking and research.