Depressive Disorders In Primary School Children: Development of a screening instrument and refinement of DSM-IV criteria to account for developmental stage

By:

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Submitted in fulfilment of part of the requirements for the Degree of Doctor of Medicine (MD) in the Faculty of Health Sciences

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October 2001

SUMMARY

South African primary school children aged between 10 and 14 years old, in grade 5, 6, and 7 of all language groups, and their teachers in two primary schools in Gauteng, Pretoria West, represent the chosen study population and are qualitatively defined. From 600 consent forms sent to parents, 201 were returned, (response rate of 33,3%). From the 201 children who entered the study, 165 (82%) completed the study.

This research demonstrated that the diagnostic process should start in the classroom with the teacher's observations.

A screening instrument was developed, the "FSIDDC" (Functional Screening Instrument for Depressive Disorders in Children). Teachers completed, after awareness training, the assessment of school functioning, psychosocial stressor identification, and modified behaviour checklist, and the child completed a self-report scale for depressive disorders. The teacher's findings were later confirmed by the clinical interview by the researcher.

The first phase of the research focused on the improvement of early identification of depressive disorders in primary school children, given all the difficulties that hinder diagnosis: scarcity of resources, depressed parents who are insensitive to their child's needs, problems in the definition of depressive disorders in children, comorbidity masking the clinical picture, age and developmental stage related differences between adult's and children's depressive symptoms. Chi-square tests and loglinear analysis were used to assess the relationship between the screening variables and the diagnostic groups. A drop in general school functioning as measured by the FSIDDC (Functional Screening Instrument for Depressive Disorders in Childhood), help to identify depressive disorders.

The second phase of the research consisted of a direct clinical interview, using standard DSM IV diagnostic criteria for depressive disorders for children, adding one essential symptom 'feeling anxious' and one additional symptom 'worry' as described by the task force on DSM IV depressive disorders. Spearman correlation analyses, Kruskal-Wallis

one-way ANOVA, loglinear analyses, and logistic regression analyses were used to isolate the best predictors of a depressive disorder.This study demonstrated that the symptom of anxiety might be added to the DSM IV criteria for depressive disorders in primary school children.
Certain developmental symptoms should guide the use of DSM IV criteria for depressive disorder.

A schedule was developed depicting stepwise strategies for appropriate assessment of depressive disorders on different levels of care to improve mental health services for young people.

Contents

LIST OF FIGURES

Diagnosis according to DSRS diagnostic ca the percentage of respondents (n = 165)

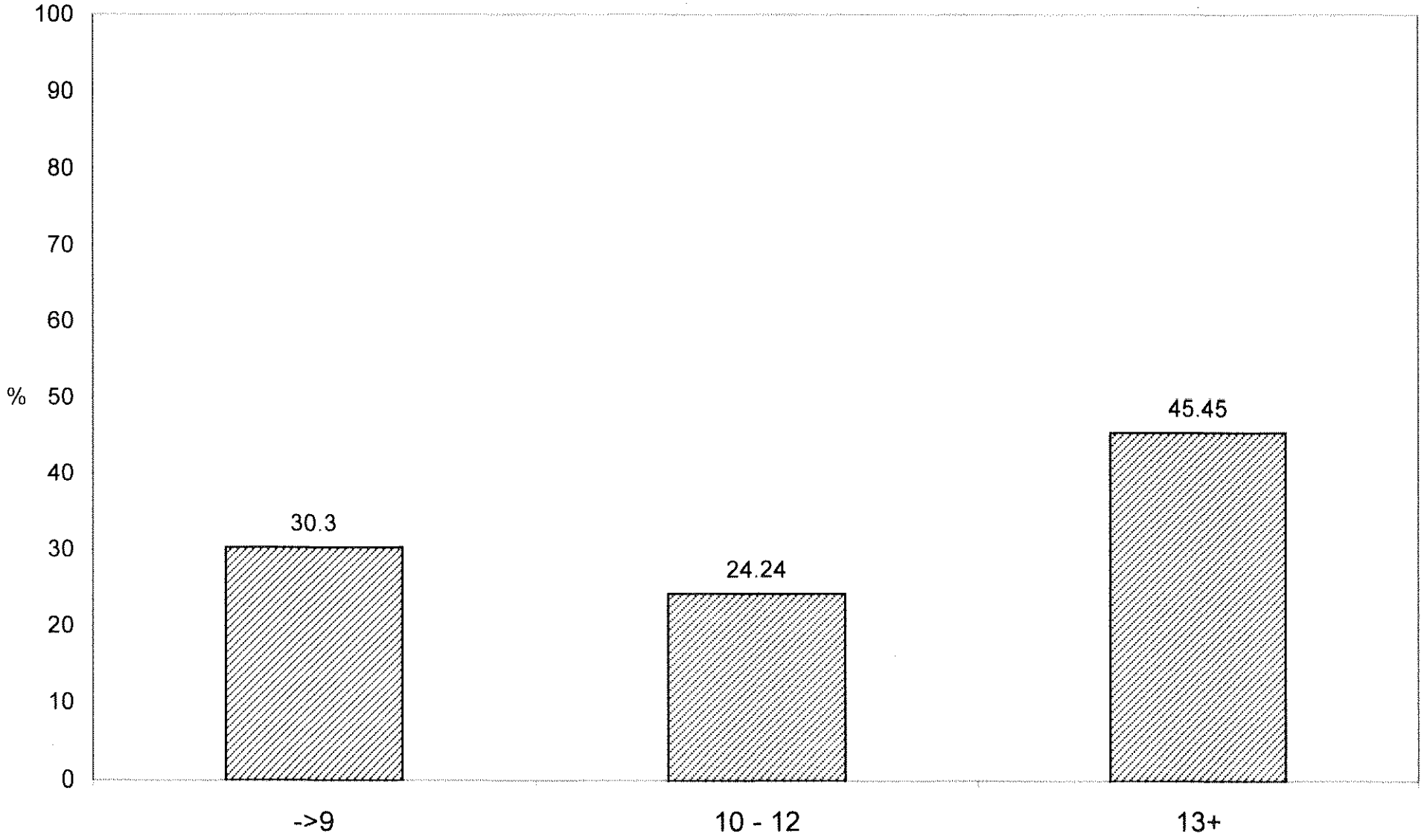
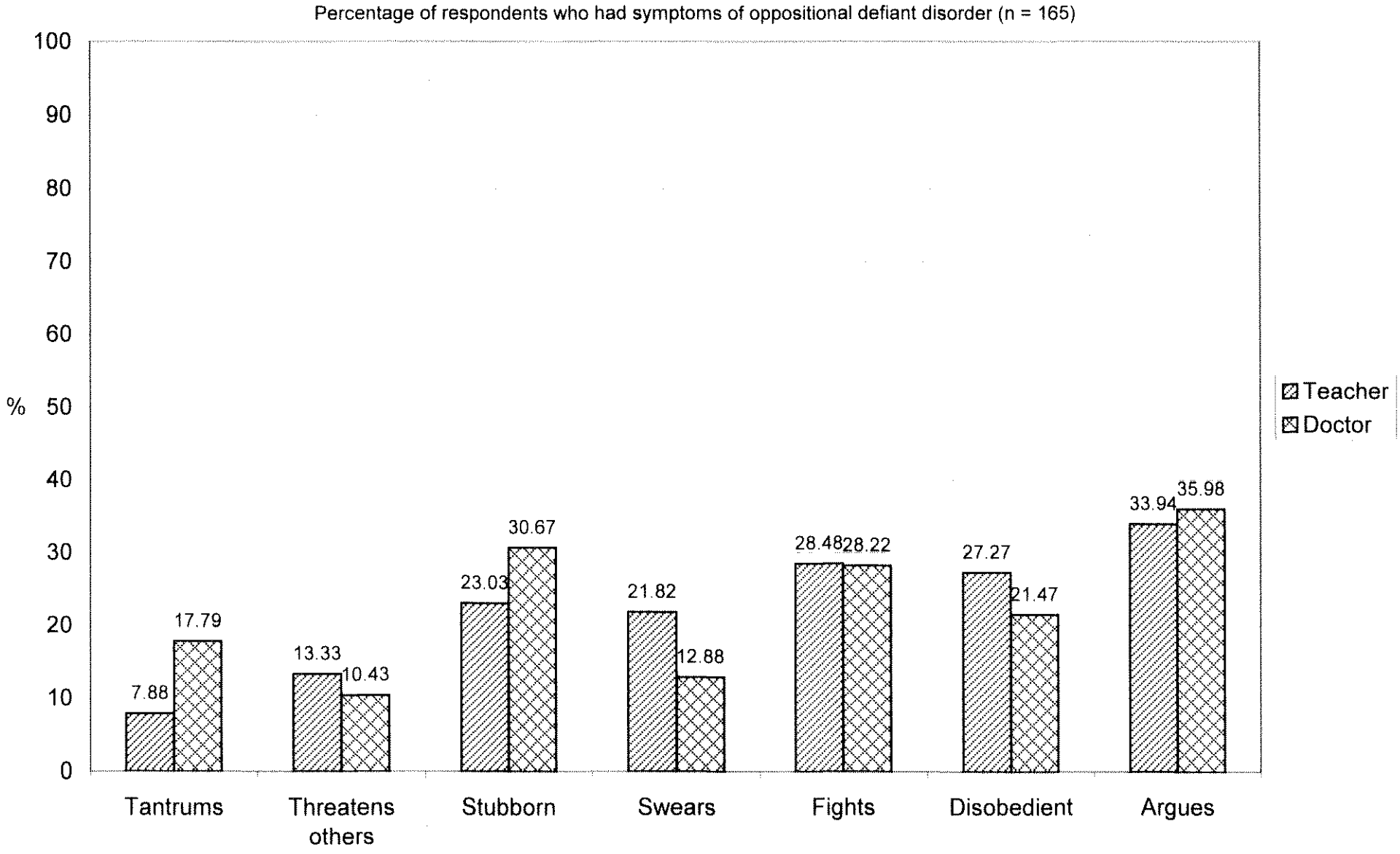


Figure 1



Symptoms of oppositional defiant disorder

Figure 2

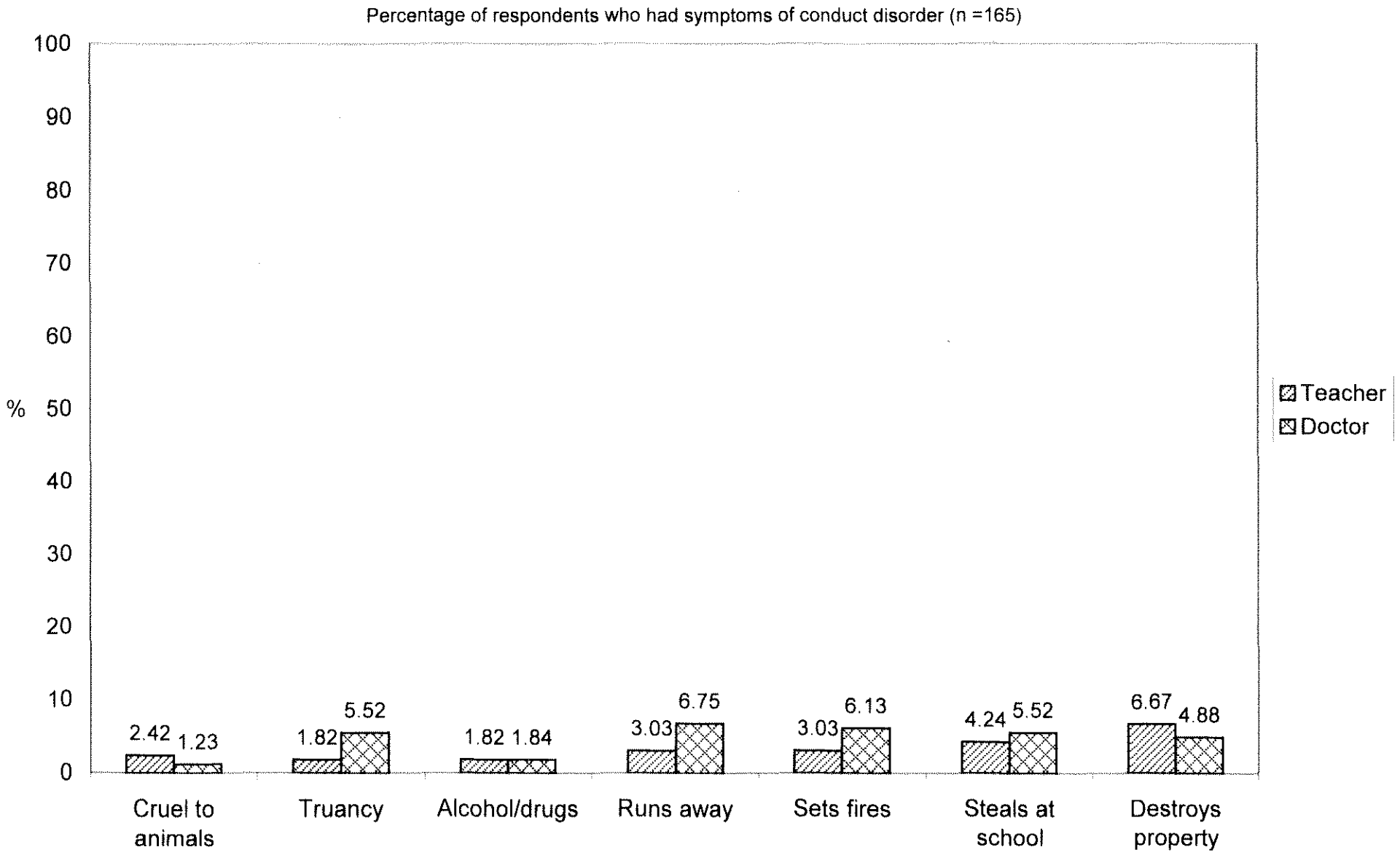
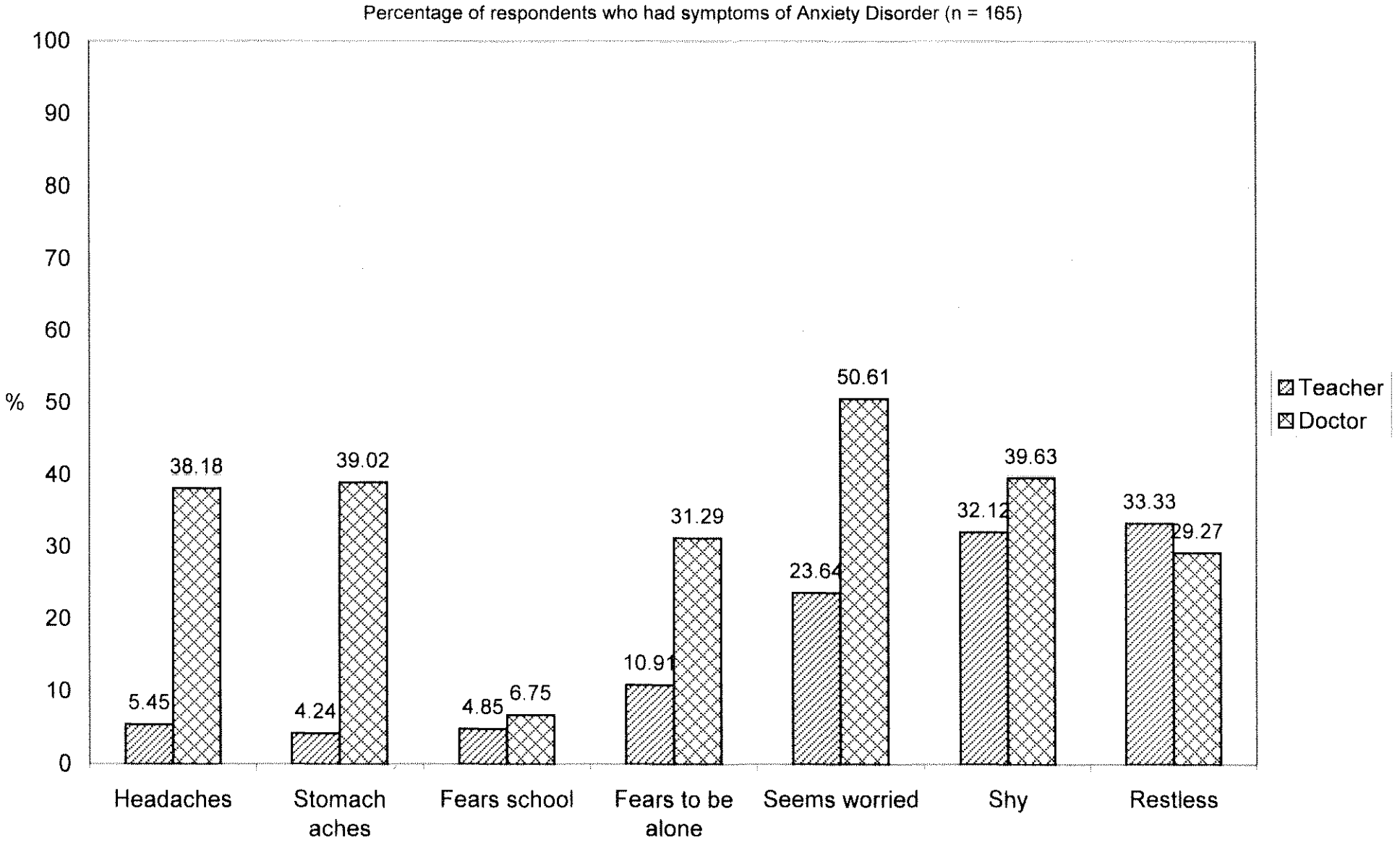
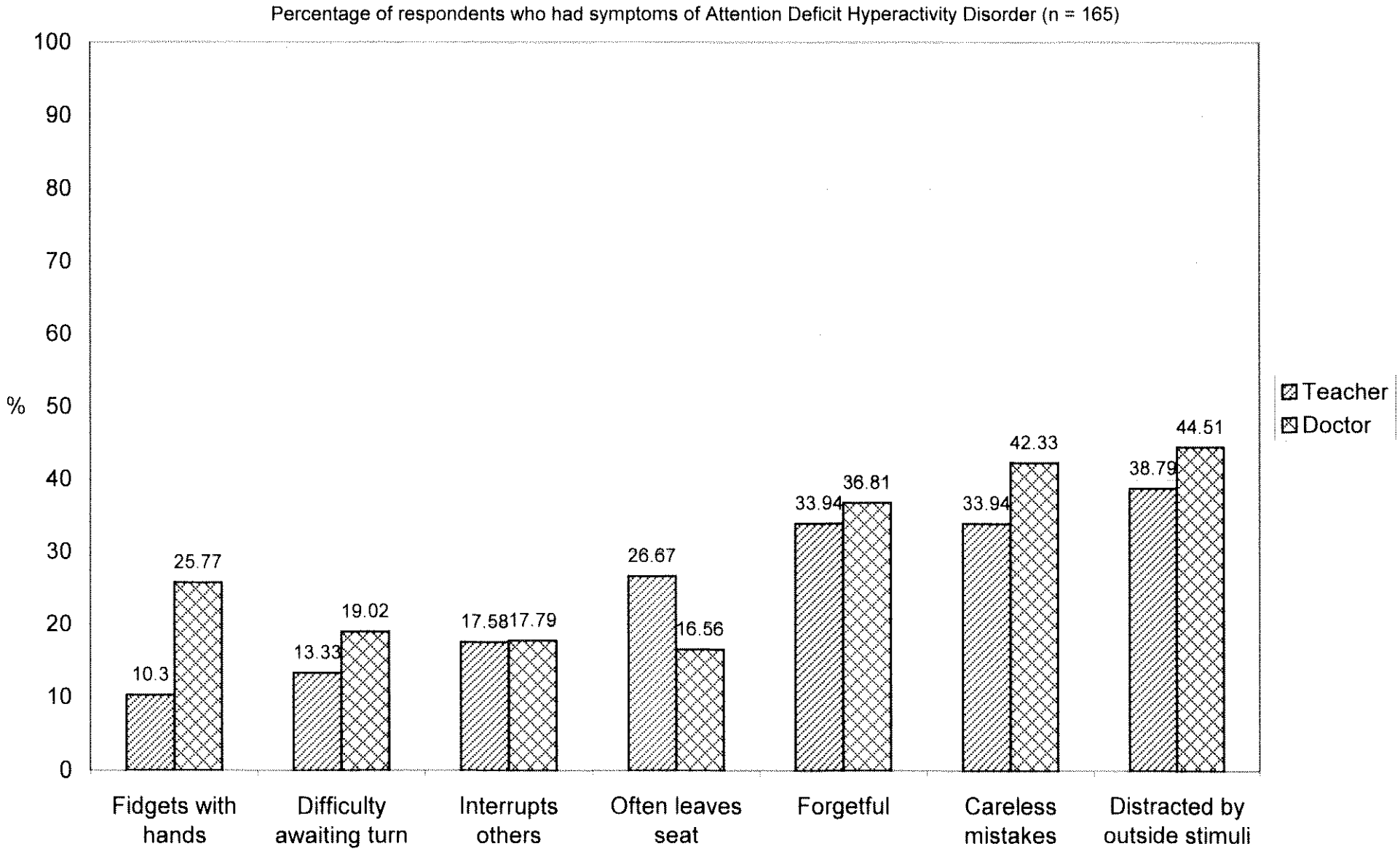


Figure 3



Symptoms of anxiety disorder

Figure 4



Symptoms of attention deficit hyperactivity disorder

Figure 5

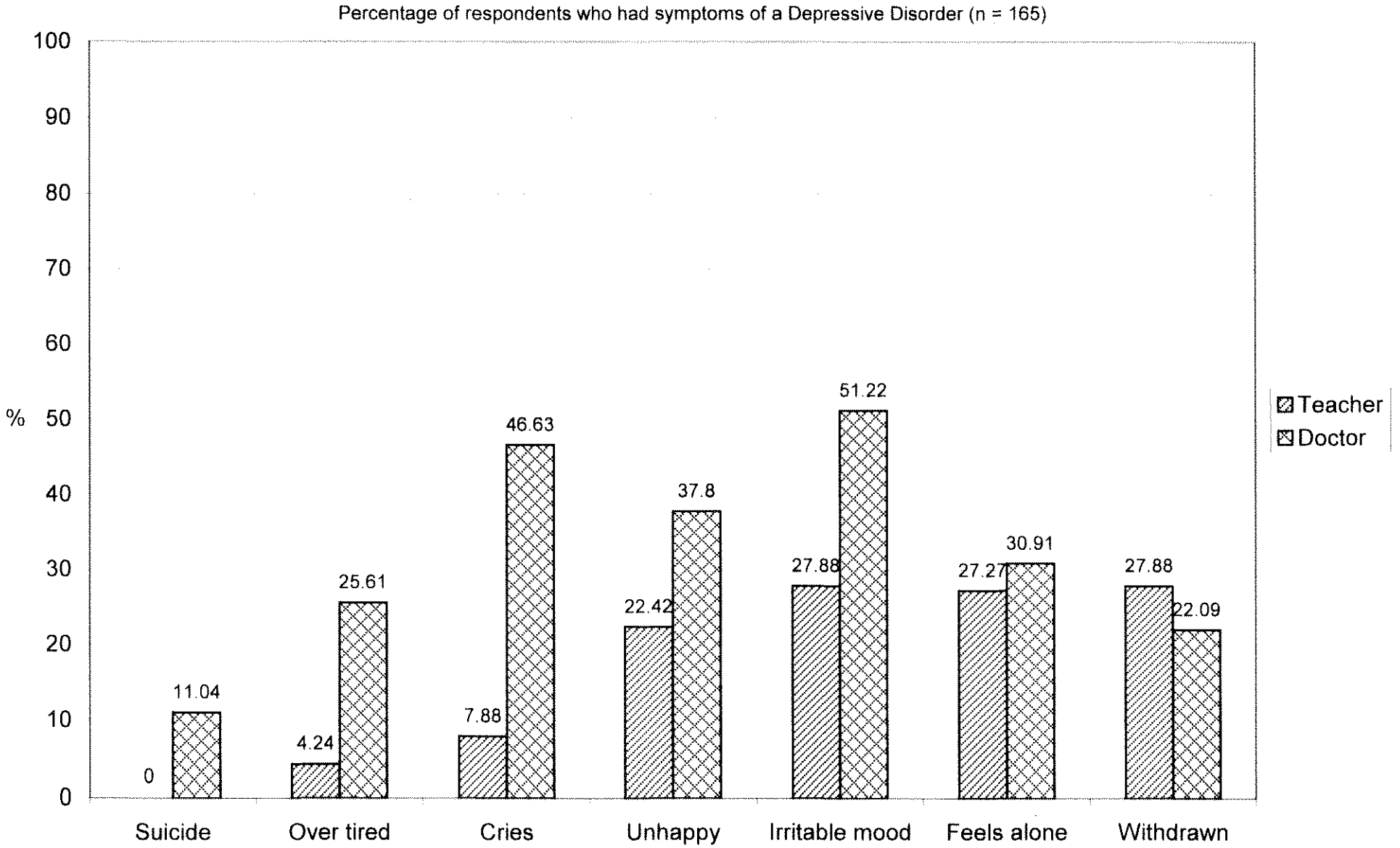


Figure 6

LIST OF APPENDICES:

LIST OF ABBREVIATIONS

DSRS	Depression Self Rating Scale
Addit	Essential features of DSM IV diagnostic criteria for depressive disorders
BMI	Body Mass Index
CDI	Child depression inventory
DADHD	Doctor's assessment of attention deficit hyperacitivity disorder symptoms
Dalg	Modified diagnostic algorithm
DANX	Doctor's assessment of anxiety disorder symptoms
DCD	Doctor's assessment of conduct disorder symptoms
Dcheck	Doctor's assessment of modified behaviour checklist
Ddep	Doctor's assessment of depressive disorder symptoms
Develop	Specific age and developmental stage related depressive symptoms
DF1	Doctor's assessment of drop in marks
Dfunct	Doctor's assessment of school functioning
DOD	Doctor's assessment of oppositional defiant symptoms
DSM IV	Diagnostic and statistical manual of mental disorders
Dstress	Doctor's evaluation of psycho-social stressors
Effunct	Effect of the depressive disorder on functioning
Essent	Essential features of DSM IV diagnostic criteria for depressive disorders
FSIDDC	Functional Screening Instrument for Depressive Disorders in Childhood
Diff 1-2	Difference in actual average school marks between term 1 and 2
Diff 1-3	Difference in actual average school marks between term 1 and 3
TADHD	Teacher's assessment of attention deficit hyperactivity disorder symptoms
TANX	Teacher's assessment of anxiety disorder symptoms
TCD	Teacher's assessment of conduct disorder symptoms
Tcheck	Teacher's assessment of modified behaviour checklist
Tdep	Teacher's assessment of depressive disorder symptoms
TF1	Teacher's assessment of drop in marks
Tfunct	Teacher's assessment of school functioning
TOD	Teacher's assessment of oppositional defiant symptoms
Tstress	Teacher's evaluation of psycho-social stressors

ACKNOWLEDGEMENTS

I want to express many thanks and gratitude to all the people who became involved in this research project:

Dr Christa Krűger, who acted as my study leader, for her support, guidance and willingness to provide new ideas and insights;

Mr Jackie Grimbeeck and Mrs Elana Mauer, at the University of Pretoria, for the statistical processing of the data;

Teachers of the different schools within the Gauteng Educational Department, who were prepared to complete the questionnaire;

The Gauteng Educational Department and Dr. Leandre Gauchè; CEO of Weskoppies Hospital, for accommodating the research;

Prof Cliff Allwood and Prof W Bodemer for excellent advice, during the early phase of the research;

Prof Louw Roos, Dr Mark Page, Mr William Griffiths and Erika Winkler, for support and encouragement;

Mrs Erna Fourie for the typing of the thesis;

Sister Maggie Mothiba for assisting me in compiling the research information;

My father, Prof Jacob van der Westhuizen, for reading this thesis;

My mother, Debbie, whose eyes are homes of silent prayer;

My husband Joseph, and my children George and Joseph, for the sacrifices they made;

My Creator, for giving me the ability and opportunity to complete this study.

"When the voices of children are heard on the green,
And laughing is heard on the hill
My heart is at rest within my breast
And everything else is still"

W. Blake, 1757 - 1827

1 Overview

This chapter refers to a number of obstacles to early identification and accurate diagnosis of depressive disorders in childhood. It outlines an approach to overcoming the obstacles, and provides a brief overview of the rest of the thesis.

1.1 Motivation for the research

1.1.1 Recurring themes pertinent to early and correct diagnosis of depressive disorders in children and adolescents

The depressed child is not easily recognised by teachers, parents or children themselves. Not only may children be incapable of experiencing and/or reporting symptoms representative of depressive disorders, these disorders may also be masked by issues like the validity of DSM-IV diagnostic criteria, age and developmental stage, and psychiatric comorbidity (Goodyer, 1995:113, Angold, 1993:1779, Rosenberg, 1994:56).

The current debate concerning childhood depression has been about the best means to diagnose depressive disorders in children accurately. Preliminary results indicate that a large number of children with multiple depressive symptoms are left without the necessary psychiatric assessment and help (Puura, 1998:577).

1.1.1.1 Scarcity of mental health resources for children and adolescents

The biggest challenge in developing countries like South Africa centres on the existence of substantial unmet mental health needs of children and adolescents. Furthermore, there is a high demand for expensive and scarce clinical treatment services, for example, the severe shortage of child psychiatrists.

1.1.1.2 Rising prevalence rates of depressive disorders in children and adolescents

Secondly, this mental health crisis has been highlighted by the recent realisation that prevalence rates of mental disorders are higher than previously recognised and are getting higher, especially those of depressive disorder and suicide recurrence. Furthermore, the proportions of identified needs of children that are treated remain appropriately low, and effective treatments are expensive.

Recent community studies reported that one child in five suffers from a DSM-IV disorder; one in ten has significantly impaired functioning; and only one in twenty receives any kind of mental health care; whereas only one or two in a hundred are treated in a speciality mental health setting (Knapp, 1997 : 4).

When referring to depressive disorders in children, there is consensus in the literature that clinically significant depressive disorder in young children (aged 8 to 13 years) is not a transitory condition. The long resolution time is demonstrated by Kovacs; 1997 : 288, who reported that a first-episode major depressive disorder (from onset to symptomatic recovery) lasted an average of 11 months and children with dysthymic disorder remained symptomatic for an average of four years, requiring re-admissions.

Epidemiological studies confirm that the prevalence rates of depressive disorders in childhood are between 8.9% and 44% and appear to be increasing (Knapp, 1997:5 , McClure et al, 1997:194). Furthermore, the presence of a depressive disorder increases the likelihood of another disorder up to a hundred-fold, complicating both accurate diagnosis and treatment (Angold et al, 1993:1783).

1.1.1.3 Underrecognition of depressive disorders in children

Not only do children themselves have difficulty in expressing or recalling information about the depressive disorders, but the illness is often unnoticed by adults.

The early identification of these disorders is compromised by inadequate symptom recognition by parents and teachers; the potential masking of depressive disorders

by the presence of another psychiatric disorder (comorbidity); and the developmental stage of the child.

1.1.1.4 Inaccurate diagnosis of depressive disorders in children

It has become apparent that the clinical manifestation of depressive disorders depends on the child's stage of development.

In addition, the application of standard adult diagnostic criteria for the onset of depressive disorders in children is not sensitive or specific enough. Furthermore, comorbid diagnoses, which are common in early onset childhood depressive disorders (Emslie et al, 1999:181), complicate accurate diagnosis even more.

1.1.1.5 Complications of untreated depressive disorders in children

If depressive disorders in children are left untreated, serious and substantial difficulties develop not only in their current school and social relationships; but also in future adulthood as depressive disorders foreshadows the mental health of future generations of adults (Aronen et al, 2000:465).

1.1.2 Meeting the challenge of early and accurate diagnosis of depressive disorders in children and adolescents

1.1.2.1 Pooling existing resources in the child's community

Identification of children at risk for DSM-IV depressive disorders can be achieved with reasonable accuracy via checklists completed by parents, teachers and children themselves (Prior et al, 1999:563a, 577). Hence, most mainstream child psychiatric researchers are in favour of using multiple informants plus observation of the child and a direct clinical psychiatric interview with the child (Kovacs, 1997: :292, Prior et al, 1999:564).

1.1.2.2 Acknowledgement of age and developmental stage-related depressive symptoms in children and adolescents

During the past 15 years, a great deal of knowledge has accumulated about very early-onset depressive disorders. Current knowledge from the literature includes information about clinical presentation, course and outcome; epidemiology; psychological; social and family correlates; selected risk factors; aspects of psychobiology; and treatments (Kovacs, 1997 :287). The new developmental approach to the study of psychopathology in children was stimulated by these important advances made in developmental science and research in children.

1.1.2.3 Refinement of DSM-IV standard criteria for depressive disorders to account for developmental stage

The view that childhood depression is a disorder with the same essential features as adult depression apart from a few modifications is the dominant view at present.

Diagnosis of depressive disorders in children is currently made by the same DSM-IV diagnostic criteria used in adults, with the exception that a depressed mood is replaced by an irritable mood in children (Goodyer, 1995:112), (Garfinkel et al, 1990:3). However, the pattern of depressive symptoms in children is likely to vary according to age and developmental stage (Goodyer, 1995:113, Kaplan et al, 1994:1245). Research findings suggest both similarities to and differences from the adult disorder. Clinical expression of depression varies at different developmental stages, and DSM-IV criteria should be revised to include them.

1.1.2.4 Comparing different screening instruments for identification of mild depressive disorders

Early identification of depressive disorder would mean early intervention and treatment, preventing complications.

The ideal screening instrument should be user-friendly; cost- and time–effective; easily applicable; allow one to gain access to impairment in functioning; empower

one to measure subjective feelings of depressed mood; enable one to screen for comorbidity; and address the chronology of symptoms, the interaction between environmental stressors and emotional responses, and developmental issues (Kaplan et al, 19981130).

Existing structured and semi-structured screening instruments do not satisfy the above-mentioned requirements.

1.2 Aims of the research project

- To improve early identification of depressive disorders in childhood (Phase I)
- To improve accurate diagnosis of depressive disorders in childhood (Phase II)
- To develop a schedule depicting step-wise strategies for appropriate assessment of depressive disorders on different levels of care to improve mental health services for young people

Phase I: To improve early identification

Several different screening instruments are to be assessed with a view to selecting the most appropriate screening instrument to be used as a tool for the identification of depressive disorders in diagnostic groups.

Phase II: To improve accurate diagnosis

The relationship between the components of DSM-IV-PLUS diagnostic criteria and age and developmental stage criteria for depressive disorders is assessed. Certain developmental symptoms (for children of a specific age group) might guide the clinician in the use of the DSM-IV Criteria.

These problems will be addressed first by comparing different screening instruments. Second, the DSM-IV diagnostic criteria for depressive disorders will be refined provisionally by comparing modified DSM-IV diagnostic criteria (DSM-IV-PLUS) for depressive disorders with age- and developmental stage-related depressive symptoms of the child. This investigation of the problems may yield valuable sensitive predictors by which the prevalent, yet under-diagnosed,

depressive disorders in primary school children could be identified at an early stage and diagnosed accurately.

1.3 An overview of remaining chapters

1.3.1 Chapter 2

In chapter 2 a historical background is given to aid our understanding of current views of childhood depressive disorders, as the influence of developmental levels and age of onset of the manifestation of the depressive disorder had already been recognised, in addition to hereditary factors.

This historical review is followed by an investigation of the role of environmental, psychological, physiological and genetic perspectives in respect of the onset and outcome of depressive disorders. Finally, the comprehensive multi-factor integrative model is discussed.

1.3.2 Chapter 3

Chapter 3 addresses the ongoing debate about the classification and conceptualisation of depressive disorder in childhood and the relevant contribution of adult psychiatry to child psychiatry.

Furthermore, the role of developmental influences is discussed as well as the crucial issue of the earliest prodromal manifestation of depressive disorder, subclassification of depressive disorder, and the importance of distinguishing between symptoms and syndromes of depression.

1.3.3 Chapter 4

Chapter 4 emphasises the essential guidelines that should be followed in the assessment and diagnosis of depressive disorder in children.

The use of multiple informants, the importance of the diagnostic process itself, the specific roles of the parents and the teachers in helping to make a correct diagnosis are explained and the importance and superiority of the direct clinical interview is discussed.

In conclusion, risk factors for the development of early-onset depressive disorders and depressive comorbidity are summarised.

1.3.4 Chapter 5

Chapter 5 represents the research methodology, explaining the aims, objectives, design, pilot study, research procedure, population and sample size in detail. Each instrument used in the collection of data is also summarised.

1.3.5 Chapter 6

Presentation of results by means of descriptive analysis is depicted in chapter 6.

Descriptive analysis of responses on all the research instruments is provided, comparing the differences between the screening instrument responses of doctors and teachers.

Descriptive analysis of responses of the clinical interview instruments consisting of DSM-IV diagnostic criteria and developmental stage-related depressive symptoms is explained.

Finally, the modified diagnostic algorithm is compared to the different diagnostic groups of depressive disorder.

1.3.6 Chapter 7

In chapter 7 an inferential analysis of the collected data is undertaken. The relationship is examined between the screening variables and the diagnostic groups. The best predictors of a depressive disorder are also isolated.

1.3.7 Chapter 8

Interpretations and conclusions of the results of the research study are discussed in chapter 8. It is demonstrated that the screening instrument facilitates early identification of depressive disorders. It is suggested that the symptom of anxiety might be added to the DSM IV criteria for depressive disorders in primary school children, and that certain developmental symptoms should guide the use of the DSM IV criteria.

1.3.8 Chapter 9

Chapter 9 focuses on strong points, the limitations of the research and future research directions.

2 Historical review and aetiological perspectives on depressive psychopathology in children

A historical review and aetiological perspectives on depressive psychopathology in children are given to aid our understanding of current views of childhood depressive disorders.

2.1 Historical doubt and denial concerning childhood and adolescent depressive disorders

Historical aspects of depressive disorders in children focused on the initial doubts and denial concerning childhood depressive disorders.

Historical studies illustrate the changing role and status of children in the family and society. Recognition and classification of childhood depressive disorders depended on the extent to which children were regarded as miniature adults; the awareness of the psychological component in children's lives; and the interest in the consequential influence of early life experience (Goodyer, 1995:3).

On the other hand, contemporary clinical and scientific reports did occur sporadically, and dated as far back as the nineteenth century where causative

explanations of mood disorders in children included physical and psychological factors;, early experience and education; and hereditary transmission (Goodyer, 1995:10).

Doubts about the development of depressive disorders in children, similar to those in adults, increased from the late 1940s to the 1960s and its existence as a clinical entity was questioned and even denied by many writers (Goodyer, 1995:15).

2.1.1 Psychoanalytic perspective

This initial perspective was held by the prominent psychoanalytic theorists, Anna Freud and Sigmund Freud, who argued that children lacked well-developed super egos and mature ego functioning, and are therefore unable to develop the dynamics of adult depression (Goodyer, 1995:15) (Wicks-Nelson et al, 1984:148).

2.1.2 Masked depression

This problematic and controversial view stipulated that an underlying dysphoric mood could be masked by other symptoms not usually associated with depression. Masked depression therefore implies that an underlying depressive disorder existed, but was "masked" by other problems such as hyperactivity, and could display depression in a variety of age-related forms, different from adult depression. It was therefore impossible to decide whether a particular symptom was or was not a sign of depressive disorder, lacking operational criteria. The importance of masked depression is that it emphasises that depressive disorder does exist in children and they may display their depressive disorder in a variety of age-related forms and in ways that may be different from adult depression (Wickes-Nelson et al, 1984:148).

This concept that depression manifested differently in children and adults, contributed in part to the development of the developmental perspective.

2.1.3 Developmental perspective

Development refers to all processes that contribute to the creation of structures that facilitate adaptation. It is a much more encompassing concept than growth, which is simply "more of".

Development, indeed, means creation of more effective structures. These structures develop on biological, psychological, family and social levels through an interaction between the organism and the environment (Morrison, 1983:226).

Evolution of the developmental perspective drew attention to the need to differentiate between transient episodes of sadness and negative affects and long-lasting expression of such emotions. However, the entity of childhood mood disorders was only accepted in the early 1970s; age-related changes in language and behaviour were seen to influence clinical expression of depressive disorders in children (Goodyer, 1995:17) .

Increasingly, reliance has been placed on the child as the best single source of information and not on the use of conventional parental reporting.

The development of new assessment methods (structured; semi-structured interviews) and the development of reliable diagnostic entities such as Research Diagnostic Criteria helped to differentiate between depressive affects and depressive syndrome.

Although, for a period, child and adult depressive disorders were treated as diagnostically uniform (isomorphic), using the same classification systems, most recent studies (Puig-Antich et al, 1978:695) have focused again on age-specific features and developmental differences during assessment and classification of childhood depressive disorders.

Kovacs 1997, suggested that a cluster of such behaviours, accompanied by impaired functioning, is likely to occur. Awareness of normative and developmental patterns might change clinical patterns and lead to changes in diagnostic practices.

2.1.4 The multi-factor integrative model

The multi-factor integrative model, is based on the role that biopsychosocial factors play in the development of depressive disorders in children; and will be discussed later in this chapter. (Refer to 2.2.4.)

2.2 Biopsychosocial factors in the aetiology of depressive disorders in children and adolescents

2.2.1 Biological factors

The biological views are mainly derived from adult literature, focusing on biochemical and genetic influences.

2.2.1.1 Biochemical factors

The studies of biochemical factors are based on the clinical effectiveness of certain antidepressant medication given in the treatment of adults with depressive disorders (Kaplan et al, 1998:1249) (Rosenberg et al, 1994:60).

The earlier proposed simplistic catecholamine hypothesis is challenged by current research, exploring not only the number of neurotransmitters available but also the complex interaction among neurotransmitter systems and receptors and their role in regulating neuroendocrine systems (Kaplan et al, 1998:1246; Dwivedi et al, 1997; Wicks-Nelson et al, 1984:157). The literature on the physiological basis of childhood depressive disorders focuses on biological dysregulation in the

hypothalamic-endocrine systems; with cortisol, thyroid and growth hormone regulation as well as EEG (electroencephalography) abnormalities (Goodyer, 1995:87; Dwivedi et al, 1997:18; Rosenberg, 1994:60) .

Identification between the types of biological dysregulation and behavioural and emotional manifestations in children suffering from a depressive disorder would be most valuable in the following cases:

BIOCHEMICAL FACTORS	TYPES OF BIOLOGICAL DYSREGULATION
Patterns of growth hormone in depressed children	Apart from any increased secretion of growth hormone during sleep in prepubertal children with a depressive disorder, less growth hormone is secreted in response to a challenge dose of insulin and clonidine. Therefore growth hormone abnormalities could serve as a marker of depressive disorder in children
Patterns of cortisol regulation during major depression disorder: Abnormal Dexamethasone Suppression Test:	Recent studies reveal that up to 50% of depressed children and adolescents do not suppress cortisol upon being given the Dexamethasone Suppression test.
Polysomnography's role in diagnosing depressive disorder in children	Polysomnography shows either changes characteristic of those of adults with major depressive disorder or no changes
The role of the downward shift of free total thyroxin (FT_4) in depressed adolescents	Thyroid hormone studies have found lower free total thyroxin (FT_4) in depressed adolescents compared with a matched control group. Although values of thyroid function remain in normal range, FT_4 has been shifted downward, resulting in clinical manifestation of depression.

In summary, differences in biochemical markers of depressive disorders between adult and children suggest that the children's and the adults' disorders are different or may represent age-related differences in the same disorder. All these inconsistent findings support the notion that the depressive process in children is not fully established (Dwivedi et al, 1997 :22).

2.2.1.2 Genetic factors

Genetic factors as reported by Puig-Antich and colleagues (Rosenberg et al, 1994:59) tend to be clustered in the same families. A family history of mood disorder in parents is associated with a much greater likelihood of mood disorder in their children and an increase in the lifetime risk of mood disorders.

The role of genetic factors is supported by the following findings (Goodyer, 1995:97):

- Children of parents with a major depressive disorder are at an increased risk for developing major depressive disorder.
- Data based on twin, family and adoptive status of mood disorder in adults suggest a heritability component in adult depressive disorder.
- Greater rates of depressive disorder were found among family members if onset of depression occurred before twenty years of age.
- First-degree adult relatives of children suffering from depressive disorder have been found to have greater than expected rates of depressive disorder.
- Family aggregation is higher in unipolar depression for those children with more severe and frequent episodes.
- It is possible that even less severe depressive disorders have a genetic loading where the genetic transmission for two types of "distress" is being influenced by the precipitation of environmental events expressed by the individual in the form of either anxiety and/or depression

2.2.2 Psychological factors

2.2.2.1 Cognitive behavioural perspective

Other factors associated with depressive disorder in childhood include the cognitive behaviour perspectives where writers suggest that a combination of low self-esteem, lowered activity level, and inadequate interpersonal skills play a role in the

development and maintenance of depressive disorders (Wicks-Nelson et al, 2000:160).

2.2.2.2 Learned helplessness

Learned helplessness, the role of cognitive factors (errors in thinking) and self-control deficits in depressed youngsters are all mentioned as playing a role in development of depression disorder (Dwivedi 1997 : 25) (Wicks-Nelson et al, 2000:160).

2.2.2.3 The role of temperament in the development of depression

According to Goodyer, 1995:55, temperament differentiates between the easy or difficult child, and refers to the child's characteristic way of interacting with the world. A difficult temperament, therefore, constitutes a risk factor for poorer outcome over the course of development. There is no universally agreed definition of a difficult temperament; however, integral to all definitions is the presence of negative emotions (easily upset and tearful) and adverse social interactions.

The author concluded that temperament contributed to the risk of depressive disorder by impacting on the child's relationship with others.

Negative social behaviour (aggression and negative support seeking), social withdrawal and low social competence were all related to higher ratings of depression.

2.2.3 Social factors

Do social stressors play a role in the onset of depressive disorders?

The role of social stressors in the development of depressive disorders has been a much discussed topic.

Life events and difficulties have been the subject of many investigations as potential causes of depressive disorders in children and adults. Goodyer, 1995:171 defines a life event as an environmental circumstance that has an identifiable onset and ending and may carry a potential for altering an individual's present state of mental or physical well-being.

2.2.3.1 Childhood loss

Much of the research on the connection between loss and depression is based on research work with depressed adults.

The common psychopathological explanation: "separation from parents and early parental loss", where the loss may be real (parental death, divorce) or symbolic, has been supported in the literature by different writers. Explanations range from the behaviourally oriented where loss or separation from a loved one results in a decrease in success, to the description of anaclitic depression seen in the young child who, after prolonged separation from his or her parents, goes from crying and restlessness into a short period of depressional withdrawal, recovering after several weeks (Wicks-Nelson et al, 2000:159) (Dwivedi et al, 1997:24).

Current views support the notion that early loss results in a chain of adverse circumstances that may put the child at risk for a later disorder (Dwivedi et al, 1997:25.). Kaplan et al, 1998:1245, debated the topic from both sides, although a role for non-genetic factors in the development of depressive disorders in childhood is noted, based on the finding that identical twins do not have a 100-percent concordance rate, little other evidence supports the role of social factors. They further mentioned that children's moods are vulnerable to severe social stressors such as academic failure, chronic family discord, abuse and neglect, and that most growing children with major depressive disorders have histories of abuse and neglect.

A study by Wallerstein and Kelly, 1980 (Dwivedi et al, 1997:25) on depressive disorder in children after divorce, found that deficient parenting and conflict between the parents before and after the divorce caused the depression, rather than the divorce itself.

A study by Cummins and Allwood, 1984:726 found that antecedent factors for suicidal threats by children were the following: family stress (especially divorce); psychiatric illness in family or patient; and school problems.

Other studies highlighted clear antecedents of depressive disorders in childhood, e.g., long-term, chronic illness, especially if hospitalisation is involved, accompanied by maternal depression and surgical procedures such as bone fracture operations (Dwivedi et al, 1997:25).

2.2.3.2 The impact of parental depressive disorder

Numerous studies have found that children from homes with a depressed parent are four times more likely to develop a depressive disorder than children of parents with no psychological disorder (Wicks-Nelson et al, 2000:161).

Parental depression can have an impact through a variety of non-biological pathways:

- Parents transmit maladaptive ways of thinking by arranging their child's social environment, by disrupting effective parenting (parents absorbed in own difficulties, making them insensitive to their child's needs), and by parent-child interactions.
- The association between parental depression, marital conflict and high levels of stressful life events exacerbates parent's depressive episodes and contributes to poor parenting skills.

2.2.3.3 Does the response to a social stressor differ between children and adults?

Goodyer, 1995:172 noted the importance of discrimination between undesirable and desirable life events, and demonstrated that major undesirable events (such as divorce) did not always results in clinical depression in adults.

Goodyer, 1995:172 investigated the input of recent life experiences on school-age children but emphasised that the child's age and developmental status must be taken into account when recording and rating the potential impact of recent life experiences. He went on to introduce the notion of measuring major life events over a child's lifetime by conducting an interview with a parent.

Goodyer, 1995:174 concluded that recent findings have shown that children's and adults' perception of the impact of recent life events are not entirely comparable. His study indicated that children are indeed capable of reporting recent life events and rating the degree of disruption. The correspondence between the ratings of children and adults may be a function of age (maturity), as the older the child becomes the greater the correspondence to the adult's responses to undesirable events.

Minde, 1994:324 noted that if the accumulation rather than the type of risks are counted, a child can manage to withstand one or two adversities, but that more than four are simply too much for healthy functioning.

2.2.3.4 Rejection by peers is one of the most frequent reasons for referral to mental health services

An important factor definitely associated with the development of depressive disorders in children is a change in social relationship, such as a sudden loss or rejection by a confiding peer group. (Dwivedi et al,; 1997:25)

In children, confiding relationships with a parent or successful peer relations decrease the risk of psychopathology, while poor friendships are a risk factor for development of depressive disorders.

2.2.4 Multi-factor integrative model

In summary: Today's aetiological perspectives on both the development of psychopathology in children as well as the normal growth and development of the child can be attributed to the multi-factor integrative explanations or models

assuming that biological and psychosocial variables continuously interact to bring about development (Wicks-Nelson et al, 2000:45). Most contemporary views on the development of depressive disorders in children and adolescents suggest a model that integrates multiple determinants like the multi-factor integrative model.

2.2.4.1 Kindling hypothesis

According to Post's model of sensitisation or "kindling" hypothesis, (Kovacs, 1997:290) first-episode depression, which can generally be linked to a particular stressor, is accompanied by long-lasting changes in biologic processes and altered responsitivity to stressors, conditioning the initial externally induced changes in brain biochemistry.

These physiological changes may occur during the first few depressive episodes that may sensitise the brain to experience biological dysregulationby less potent environmental and/or physiological events more easily.

One final reason for concern about depressive disorders in childhood is the possibility that the first depressive episode may sensitise patients to future bouts of depressive illness (Kovacs, 1997:290) (Goodyer, 1995:95).

Therefore, adults who had their first depressive episode in childhood could be expected to have a higher number of total episodes by any given age than their peers with later onset depression (Kovacs, 1997:290).

2.3 In conclusion

Depressive disorders seen as a heterogeneous condition will result in a greater understanding of both the general components and the specific individual differences in children and adolescents suffering from depressive disorders. The level of awareness of child development, the aetiological implications of early life experience and other biopsychosocial features have been neglected (Goodyer, 1995:20).

This chapter examined the biological (genetic- and biochemical-) psychosocial factors that have been empirically associated with depressive disorders in children.

Although the aetiology of depressive disorders has been conceptualised in relatively simple ways over the past few decades, current views support the fact that, in general, environmental factors interact with genetic factors, and that one risk factor increases the probability of experiencing additional risk factors. A contemporary view necessitates a multifaceted approach to aetiological factors as described in the multi-factor integrating model, examining additive and interactive effects of multiple risk factors in the development of depressive disorders in children (Ollendick et al, 1998:37).

3 Problems experienced in diagnosing childhood depressive disorders

3.1 Introduction

Chapter 3 outlines the problems inherent in the accurate diagnosis of depressive disorders in children.

Originally, the concept of depressive disorders in childhood owed everything to the contribution of adult psychiatry. It is only during the past decade that child psychiatry has been examined within the developmental context, recognising the important differences between adults and children in chronological age, social development, behaviour, developmental stage and cognitive capacity. The focus of this chapter is on the clinical presentation and classification of unipolar depressive disorders in childhood.

3.2 The developmental perspective in the clinical presentation of depressive disorders

The developmental perspective on depressive disorders in children continued to evolve and has become an important element in the study of depressive disorders in children.

The importance of awareness of normative and developmental patterns is illustrated by the need to differentiate between transient isolated episodes of

sadness and negative affects on the one hand, and a cluster of long-lasting depressive behaviour expressions accompanied by impaired functioning on the other, e.g., interference with adaptive functioning and the mastering of developmental tasks (Wicks-Nelson et al, 2000:149).

3.2.1 Developmental chronology

High-risk periods for the development of the following psychiatric disorders (Kovacs et al, 1998:53) are identified as follows:

- **Early childhood**: anxiety disorders
- **Middle childhood**: behaviour disorders
- **Late childhood**: depressive disorders

In other words, children at risk of the disorders are most likely to exhibit anxiety disorder first, behaviour disorder second, and depressive disorder third.

Therefore, early identification of middle childhood psychiatric disorders is important to prevent the development of clinical depressive disorders in later childhood.

Referring to the literature on childhood depressive disorders, several myths have been identified, e.g.:

3.2.2 Childhood depressive disorder (CDD) reflects a normal developmental stage

CDD is a transitory developmental phenomenon and occurs in a "masked" form (Olliedick et al, 1998:269).

Clinical and empirical research have countered these myths. As people realise that children do experience sadness and despair, it has become clear that a change in mood that is enduring and persistent, and sufficiently severe, constitutes a depressive mood disorder (Goodyer, 1995:111).

In adult psychiatry, research into the characteristics of adult depressive disorder found that the diagnostic criteria in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) for major depressive disorder, dysthymic disorder and Bipolar I disorder could be the same for children and adolescents (Kaplan et al, 1998:1245), apart from minor modifications.

Modifications for major depressive disorder in children and adolescents include failure to make expected weight gain, instead of weight loss or gain; and an irritable instead of a depressed mood. Dysthymic disorder has been modified to one year in children rather than the two years in adults, with an irritable mood indicated rather than a depressed mood (Kaplan et al, 1998 :1245).

Furthermore, the expression of a depressive disorder varies in children according to their age: young children with depressive disorder experience somatic complaints, withdrawn appearance, poor self-esteem and mood-congruent hallucinations, whereas late adolescents with depressive mood disorders experience anhedonia, severe psychomotor retardation, delusions and a sense of hopelessness. Researchers conclude that age and developmental stage do affect the expression of depressive disorder symptoms in children.

3.2.3 Developmental psychopathology framework

Comparing children aged 6 to 8 years with those aged 9 to 12:

Children in the age group 6 to 8 years show a relatively stable pattern of depressive symptoms that include prolonged unhappiness, decreased socialisation, sleep problems, irritability, lethargy, poor school performance, accident proneness, phobias, separation anxiety and attention-seeking behaviour (Ollendick et al, 1998:270).

Children in the age group 6 to 8 years do not verbalise hopelessness and self-depreciation. They express their inner experience through behavioural problems. In contrast, 9- to-12-year old children are more self-aware, often verbalising

feelings of low self-esteem and helplessness when depressed. They also experience irritability, depressed mood, sad expression, aggression, lethargy, guilt, poor school performance, phobias and separation anxiety.

More severe symptoms may emerge with suicidal ideation, hallucinations and self-destructive behaviour (Ollendick et al, 1998:270).

Ollendick et al, 1998:271 emphasised the importance of developmentally sensitive criteria for depressive disorder in children, and the concern of researchers with children who exhibit a constellation of depressive symptoms whether or not they meet the DSM-IV criteria for a depressive mood disorder.

The following suggestions on research of depressive disorder in children are found to be valid and reliable (Wicks-Nelson et al, 2000:151):

- The research should focus on children who experience relatively extreme levels of symptoms of depression, no matter how measured or defined.
- A variety of methods and measures should be employed in defining depressive disorder in existing research.
- It is not clear that DSM-IV diagnostic criteria are the critical cutoff point, as these children fall short of meeting diagnostic criteria and still exhibit impairment in everyday functioning.
- The syndrome of mixed depression and anxiety features has emerged consistently in research with children and adolescents, and again emphasises the issue that depressive disorder manifests itself differently in children.
- It is unacceptable to use the same age and developmental stage-related depressive symptoms to diagnose depressive disorder across all age groups.

3.3 Classification

3.3.1 DSM-IV classification of depressive disorders in childhood

Understanding depressive disorders in children and adolescents is a complex task. Not only is the classification of mood disorders one of the most highly debated topics in modern psychiatry, the phenomenon of a depressive disorder in childhood involves a complex interaction between biopsychosocial factors resulting in a complex clinical presentation (Puura et al, 1999:387).

In adult mood disorders, two major distinctions emerged on the classification of depressive disorders: firstly between bipolar and unipolar mood disorder, and secondly between psychotic (endogenous) and neurotic (reactive) depression (Goodyer, 1995:111).

Referring to unipolar depressive disorder, the "endogenous" depressive disorder reflects a clinically more severe and persistent depressive disorder unrelated to environmental adversities. Diagnostic criteria include somatic and anorexic symptoms (weight loss, insomnia, early morning wakening and diurnal variation of mood), severe guilt, hopelessness and psychomotor retardation/agitation.

Neurotic or reactive depressive disorder, in contrast, is clinically a milder disorder, possibly reactive to environmental adversities. It is accompanied by anxiety, initial insomnia, self-pity, and complaints of anorexia rather than weight loss.

Goodyer, 1995:112 refined these proposals for classification of depression and produced the Research Diagnostic Criteria for the diagnosis of depression.

The basis of the DSM-IV – R classification followed in the Research Diagnostic Criteria for the diagnosis of depressive disorder states that:

"A diagnostic category has to be supported by specific descriptive criteria that specify characteristics that lead to making the diagnoses (inclusion criteria) and characteristics that lead to making the diagnosis (exclusion criteria)"

(Goodyer, 1995:112).

Classification of Depressive Disorders

Depressive disorders are classified using the DSM-IV diagnostic system	Ollendick et al, 1998:272 concluded that DSM-IV criteria have limited applicability to childhood depressive disorder as there are no diagnostic criteria listed in the section: "Disorders Usually First Diagnosed In Infancy, Childhood or Adolescence". Current DSM-IV criteria do not pay attention to the cognitive, emotional and interpersonal competence of children.
Major Depressive Disorder (MDD)	The child's symptom must cause distress or impairment and reflect a change in baseline functioning, with 5 or more of the following in the same 2-week period: ➢ Depressed or irritable mood ➢ Anhedonia ➢ Failure to make expected weight gains ➢ Sleep disturbance ➢ Psychomotor agitation or retardation ➢ Fatigue ➢ Guilt feeling or worthlessness ➢ Concentration problems ➢ Thoughts of death, irritable mood, somatic complaints and withdrawal may be prominent.
Dysthymic Disorder (DD)	Children are depressed or display irritable mood for at least 1 year.
Adjustment Disorder with Depressed Mood (ADDM)	Depressive symptoms reflecting a maladaptive reaction to identifiable psychosocial symptoms occur within one month of onset of stressor; do not persist longer than 6 months; do not meet criteria for Dysthymic Disorder or Major Depressive disorder
Mood Disorder related to a general medical condition	Evidence from medical history, physical examinations or laboratory tests show that mood disorders are the result of the physiological effect of medical conditions.
Substance-induced Mood disorder	Mood disorder develops within a month of alcohol or drug intoxication or withdrawal.
Depressive Disorder not otherwise specified	When depressive symptoms do not meet the criteria for MDD, DD or ADDM

In a study by Goodman et al, 2000:761 to evaluate differentiation of major depression and dysthymia in children and adolescents, no support for differentiation was found, but it was noted that the combination of disorders is serious and disruptive for normal developmental processes.

3.3.2 Depressed mood vs depressive syndrome

Depressed mood reflects the presence of dysphoria or sadness for an unspecified time as measured with a self-report scale, e.g., the affect scale of Children's Depression Inventory.

Depressive syndrome defines depression as a set of behaviours that occur together more often than are expected by chance. The behaviours are derived statistically and are based on multivariate empirical methods resulting in clusters of symptoms according to age and gender: in children 4 to 11 year's old, the child feels lonely, cries, has fear of doing bad things, feels unloved, feels worthless, feels others are out to get him/her, feels nervous, fearful, guilty, self-conscious, suspicious, sad.

(Ollendick et al, 1998:272-273; Goodyer, 1995:119-122)

3.3.3 Attempts at defining depressive disorders in middle childhood

Given the difficulties that are inherent in the definition of depressive disorder, several definitions exist in the literature

(Dwivedi et al, 1997:10-18).

A "depression" may be considered to be a mood, a syndrome, or a disorder, (Ollendick et al, 1998:271; Dwivedi et al, 1997:14; Goodyer, 1995:114), as several authors tried to distinguish between them.

Each author's approach towards conceptualising and diagnosing depressive disorder in children represents a different level of the set of assumptions about the nature of depressive psychopathology; the level of the phenomena; and the purpose of the classification (Ollendick et al, 1998:270). The high rates of co-occurrence with other childhood psychiatric disorders (comorbidity), complicates the diagnosis of depressive disorder even further.

There is some confusion between depressive syndrome and disorders. The term "depression" may be used to refer to a symptom of affect or mood, a syndrome

consisting of a cluster of depressive symptoms, or a disorder reflecting a category of individuals with a set of clinical features associated with impairment of function. (Goodyer, 1995:115)

Carlson, 2000:161 Suppl 1:3-8 noted that depression can result in serious consequences at school such as absenteeism or a decrease in educational progress, comorbid with other psychiatric disorders, and therefore complicating diagnoses.

3.3.4 Subclassification of depressive disorders (mild or lesser disorders)

In adult psychiatry subclassification is known to be complex.

In child psychiatry this complexity is compounded by child development issues.

Verhulst and colleagues, using data from the Child Behaviour Checklist, carried out factor analysis on samples of boys and girls aged 6 to 11 and 12 to 16 in a province of Holland (Goodyer, 1995:117).

Goodyer, 1995:117 reported the presence of an empirically derived depressive syndrome in children aged 6 to 11 years, with the main features that emerged being those of feeling unloved, unhappy and sad, including a depressed mood, feelings of worthlessness, feelings of being persecuted, feeling lonely, worrying, fears of school, suicidal talk, suspiciousness, feelings of guilt and obsession.

However, in the 12- to 16-year-old group, the symptoms of depression seemed to vary and no distinctive depression syndrome emerged. The authors concluded that the findings from multivariate data analysis are influenced by the method by which data were obtained (self-rating compared with direct interview), the age and sex of the subject, and the population.

A study by Ryan et al, 1987:854 at Pittsburgh and New Castle Studies reported meaningful factors that proved to be similar for both children and adolescents; e.g., "endogenous" depression and depression with negative cognitions. This

distinction suggested that depressive syndrome in childhood may differ in their nature and characteristics from those in adulthood.

3.3.5 Earliest prodromal manifestations of a depressive disorder

The challenge to identify the earliest symptoms of depressive disorder should entail an awareness of early manifestations.

When initial states of feeling sad, miserable, or irritable become more frequent, protracted or intense, they should be seen as an early warning sign. Kovacs et al, 1997:292 refer to the core definition as follows:

"A sustained and notable sadness and despondency indicate that the individual has not been able to "control" or "modify" the initial dysphoria. Correspondingly, additional symptoms and signs of depressive syndrome may appear."

The finding that dysfunction in the regulation of negative emotions precedes the depressive syndrome supports the literature that children who feel depressed also tend to be hostile and aggressive.

An investigation into the daily mood states of 1-0 to 15-year-old students reported that the students who initially had depressive symptoms, reported greater daily feelings of unhappiness, anger and irritability and more emotional variability than did non-depressed peers (Kovacs et al, : 1997:292).

As far as the diagnosis of subclinical or mild depressive disorder is concerned, a study was done on adolescent girls whose parents reported them to be free of psychiatric disorder. A structured interview, the diagnostic interview for children and adolescents was introduced. Of girls who entered the study, 44% had at least mild depression symptoms with a negative attitude towards the school, but with average achievement scores (McClure et al, 1997:187).

The high frequency of subclinical and clinical depression in adolescent girls is estimated at 59%, followed by spontaneous remission of 50% of clinical depressive episodes within 8 weeks (McClure et al, 1997:194). This finding indicates that adolescent females with subclinical levels of depression are more likely than their non-depressed peers to have social and behaviour problems, lower self-esteem, and to be less competent academically (McClure et al, 1997:195).

The above-mentioned study highlights the importance of early intervention of mild depressive disorders to prevent future clinical depression.

It is important to keep in mind the importance of decline in academic achievements and interpersonal functioning, combined with symptoms of "depressive" disorder.

In a study done on 1652 adolescents (Wicks-Nelson et al, 2000:171) who presented with early episodes of subclinical levels of depression, in other words, who experienced depressive symptoms but who did not meet the criteria for diagnosis of a depressive disorder, the students were divided in two groups - usual case-control condition and fifteen-session cognitive behavioural intervention. At the twelve-month follow-up there was a 14.5% incidence of Major Depressive Disorder or Dysthymia in the treated group versus 25.7% in the control group.

In another study (Wicks-Nelson et al, 2000:171), children between ten and thirteen years, who had increased (high scores) on the Children's Depression Inventory and who reported high levels of parental conflict in existent families, were divided into two groups - a group receiving treatment (cognitive behavioural interventions and other treatment) and a "no-treatment" control group. Children who received treatment and prevention of depressive symptoms at the end of treatment and two-year follow-ups had significantly greater relief of depression.

From the above it is clear that subclinical depressive symptomatology may represent a prodromal phase in the development of depressive disorders. The diagnostic process should therefore take account of subclinical syndromes. The findings that subclinical syndromes are associated with a decline in school

functioning and general functioning would suggest that the diagnostic process should account for decline in functioning.

It would suggest that we need to look at children's levels of functioning when we assess them for depressive disorder, even at the screening phase.

3.4 In conclusion

The need for more aggressive efforts at early identification of and intervention with youngsters who have develop depressive disorders, and the serious consequences if ignored, have been emphasised by Kovacs 1997:294.

Given the examples in the literature concerning the age and developmental stage-related depressive disorder differences between children and adults, many workers concluded that it is premature to accept the use of the same criteria for depressive disorders across all age groups. Research has not been sufficient and certain findings need to be explored further.

4 Important strategies in the assessment of depressive disorders in children

4.1 Introduction

The challenge of an early and accurate diagnosis of depressive disorder is based on the difficulties experienced in defining and classifying the concept and in the growing prevalence of depressive disorder and depressive comorbidity that have necessitated the development of a number of strategies and instruments.

This chapter will focus on the contribution of various role-players in the assessment of depressive disorder.

4.2 Assessment strategies

4.2.1 The "who"

The "who" refers to the child. Primary-school children are capable of reporting their own feelings and thoughts, and changes in their functioning (school performance, interpersonal relationships, sports, hobbies and grooming). This direct interviewing of the child is a reliable and valid measure of the child's present mental state (Goodyer, 1995:132).

4.2.1.1 Clinical Interview with child

Goodyer, 1995:122 confirms that children as young as 8 years and younger are capable of reporting accurately on their feelings and thoughts.

Direct clinical interviews with the child have been found to be one of the most sensitive methods of assessment (Goodyer, 1995:122; Teeter et al, 1997:140).

The advantage of the clinical interview lies in the opportunity of gathering information from multiple sources; answering questions more accurately in connection with the severity, the duration and the frequency of depressive symptoms; and allowing the clinician to compare the child's feelings with his/her developmental and mental age (Teeter et al, 1997:141).

A decline in school performance reflects significant psychological problems, as school performance is the prime barometer of healthy functioning (Kaplan et al, 1998:1283).

Kaplan et al, 1998:1283; Son et al, 2000:2297 identified poor school performance as a risk factor for depressive disorder. Poor school performance may be the result of a wide range of psychiatric disorders, for example, substance abuse, and attention deficit hyperactivity, or behaviour disorders. However, a sudden drop in school performance, hobbies, sports and grooming in a child of average intellectual functioning should be seen as an indication for immediate psychiatric evaluation to screen for emotional problems (e.g., mood disorder and/or anxiety disorders).

An important finding is that children are reliable reporters of some symptoms, i.e. internalising symptoms, including depressed mood, decreased interest and sleep and appetite changes, that are not well reported by parents (Emslie et al, 1999:182).

Apart from the presence of the symptoms of a depressive syndrome with definite changes in behaviour, e.g., a loss of pleasure in normal activities, irritable mood, failure to make expected weight gains, and disturbed sleep, these symptoms should be severe enough to cause impairment of normal functioning (school/academic achievements, and/or interpersonal relationships). The importance and accurate assessment of the primary school child's academic and interpersonal functioning are discussed.

4.2.2 The "what"

The "what" refers to the diagnostic instruments available for diagnosing depressive disorders and the diagnostic process itself where an accurate diagnosis requires the use of multiple informants: child, parent, school and an experienced clinician in synthesising the information from multiple sources. The role of the parents and the teacher in the diagnosis of internalising (depressive-) disorders versus externalising (disruptive behaviour- and hyperactivity-) disorders is discussed (Emslie et al, 1999:182).

4.2.2.1 The importance of the diagnostic process in childhood depressive disorders

Accurate diagnosis of childhood depressive disorder differs from that in adults. Information is used from multiple informants: child, parent, teacher, and other professionals, and an experienced clinician to synthesise the information from the multiple sources.

4.2.2.2 The child self-report scales

4.2.2.2.1 Children's Depression Inventory (CDI)

The most frequently utilised rating scale with the greatest amount of research has been the Children's Depression Inventory (Teeter et al, 1997:141). The CDI consists of 27 items with three alternatives to each question to grade the severity of symptoms.

The CDI has shown consistency of cross samples of relatively different cultures, and can reliably be used in young children as discussed in a study by Frigerio et al, 2001:33.

The CDI may be used as a screening measure, after which further diagnosis may rest on clinical interviews and measures of other rating scales.

4.2.2.2.2 Depression Self-Rating Scale (DSRS)

The Depression self-rating scale (DSRS) is an 18-item scale designed specifically to measure depression in children between the ages of 7 and 13. It is written in a simple language and the response categories are easy to understand. The scale includes mood, physiological, somatic complaints and cognitive aspects of depressive disorder. The validity of the DSRS is sound and correlates 0.81 with the children's depressive inventory (Corcoran et al, 1987:391-392). (For a discussion of instruments, see 5.5.1).

The usefulness of the DSRS has been demonstrated in child populations. It is easy to use and its items appear to reflect the feelings and thinking of children, i.e. it has face validity also for the patient him/herself.

The DSRS makes fewer demands on cognitive abilities than the CDI (Ivarsson et al, 1997:60). The DSRS discriminated significantly between depressed and non-depressed children with very few positive errors or false positives (classifying non-depressed children as depressed) (Corcoran et al, 1987:391).

4.2.2.2.3 Other self-report scales

These include the Beck Depression Inventory and Zung Scale. While these are commonly known and used as depression severity measures, they lack the measurement of disability components. There is a need to develop brief self-report measures to quantify depressed mood as well as functional social and school impairment (Parker et al, 1997:49).

4.2.2.3 Parental reports

Although parents do talk spontaneously about the child's presenting problems and family background (Dwivedi et al, 1997:39), reports in the literature confirm that in some cases of children suffering from depressive disorder, parents are unaware of their child's symptoms (Goodyer, 1995:122) and are more capable of giving information on externalising symptoms (Puura, 1998:578).

Two primary categories of problems in school-age children are described in a large number of studies. Ollendick et al, 1998:10 describes externalising or outer-

directed clusters of behaviour such as conduct problems, hyperactivity, aggressive and antisocial behaviours on the one hand, and internalising or inner-directed clusters of behaviour such as withdrawal, depressed, somatic and neurotic problems.

4.2.2.3.1 The child behaviour checklist

The child behaviour checklist consists of items making up the different scales, e.g., oppositionality, conduct, hyperactivity and depression (Achenbach, 1991:100). (For discussion of instruments see 5.5.1.)

The advantage of this checklist is that specific problem areas that may otherwise be overlooked can be identified (comorbidity).

The child behaviour checklist is designed to obtain parents' ratings of their children's functioning in a standardised fashion (Ollendick et al, 1998:68).

The child behaviour checklist assessment of comorbid conditions, anxiety and depression can be thought of as part of the same continuum of problems (Wadsworth et al, 2001 :106).

Limitations:

- The child behaviour checklist is not used specifically to make a diagnosis.

4.2.2.4 Teacher reports

The importance of teachers as the most reliable informants concerning symptoms of attention problems and hyperactivity are well described in the literature. In a study by Loeber, Green and Lahey (1990) teachers were also found to be more sensitive to internalising symptoms in children than were parents (Puura et al, 1998:578; Mesman et al, 2000:1371).

The researchers go on to report that the miserable or depressed mood may not be noticed as frequently in the depressed children as the unresponsiveness it may cause, and the problems with attention may well be seen as restless or squirming behaviour in the classroom.

The teacher's report form is designed to obtain teacher's ratings of many of the same behavioural and emotional problems that parent's rate on the child's behaviour checklist, in more structured academic settings. It includes items that are scored on scales for academic performance and adaptive functioning (Ollendick et al, 1998:69).

4.2.3 The "when"

The "when" refers to the importance of the awareness of the presence of early depressive symptoms and prodromal symptoms and early impairment in functioning.

4.2.3.1 The clinician

Accurate diagnosis requires the use of multiple informants: child, parent, the school teacher and a clinician experienced in synthesizing the information from multiple sources. Furthermore, poor reliability of psychiatric diagnosis in adults is widely documented in literature. Not only does research in the field of psychopathology lack a gold standard to establish the presence of morbidity, but differences exist between clinicians in their application of diagnostic criteria.

4.2.3.2 Sources of variability

- Lacking clear diagnostic guidelines, clinicians give different judgements to identical data because of ambiguities (**criteria variance**).

  Kenneth et al, 1998:172, emphasised the lack of knowledge about the boundaries between major depressive disorders according to DSM-IV criteria and milder subsyndromal depressive states. They further found very little empirical support for the DSM-IV requirements of 2-week duration, five symptoms or clinically significant impairment. Most functions appeared continuous. They concluded that DSM-IV criteria reflect a continuum of depressive symptoms of varying severity and duration, and not a discrete syndrome.

- Informants may report different information at different times (**occasion variance**).
- Deficiencies in information gathering (**information variance**).
- Inadequate use of the information on which diagnosis is based (**utilisation variance**).

- Inconsistent or incompetent information on the part of the diagnostician (Expeleta et al, 1997:431) (**competence variance**).
- In addition to the above-mentioned sources of variance, psychiatric data on children and adolescents can be affected by the identity of the informant (parent, child or both); the relative weighing of reports of the various informants; the age of the youngsters being assessed; the time frame of the assessment; and the particular diagnosis under consideration (Kovacs et al, 1998:48).

Agreement between clinicians is higher when the population studied has severe psychopathology (e.g., inpatients); when the interval between interviews is short; if neither of the clinicians assesses in the initial interview; when they use the same assessment instrument; when they have the same training and background; and when they rely on the same source of information.

4.2.3.3 Structured and semi-structured interviews

Structured interviews cannot replace clinical interviews. (Refer to 1.1.2.4.)

Advances have been made in the adaptation of DSM-IV diagnostic criteria for depressive disorders in both children and adolescents. In the past decade a draft version of a childhood disorders' form of the SCID (called the KID-SCID) was developed in 1993 by Dr Matzner, in collaboration with a group at Biometrics Research. It follows the same basic structure and conventions as the standard SCID (i.e., overall structure, three-column approach, ratings, etc). The Structured Clinical Interview for DSM-IV, Childhood Diagnoses (KID-SCID) is a new semi-structured instrument designed for clinical research studies. It is based on the adult SCID, which has good reliability and utility. The KID-SCID is easy to use, has utility as a training tool, and has demonstrated excellent inter rater reliability. It includes many of the childhood disorders as well as most of the "adult" disorders included in the SCID, with probe questions rewritten for applicability to children. The following childhood disorders are included: disruptive behaviour disorders (i.e., attention deficit hyperactivity disorder, conduct disorder, oppositional defiant disorder) and separation anxiety disorder (Matzner et al, 1997, American Psychiatric Association meeting).

4.2.3.3.1 Kiddies Schedule for affective disorders and schizophrenia

Multiple items with space for classification of symptoms keyed to many diagnoses in Diagnostical and Statistical Manual of Mental Disorders are presented. The process of the interview has been operationalised into a research diagnostic interview such as the Kiddies Schedule for Affective Disorders and Schizophrenia (Emslie et al, 1999:182). This has been used in children between 6 and 17 years of age. This is a reliable instrument for measuring symptoms of depressive disorder and conduct disorders, although ratings of anxiety disorders have not been consistent (Kaplan et al, 1998:1130).

4.2.3.3.2 Diagnostic Interview Schedule for Children - Revised

A structured interview, applicable for a multitude of diagnoses, in children 8 - 17 year's old, assesses symptoms over the previous six months, and is used adjunctively in the evaluation process (Cantwell et al, 1983:157).

4.2.3.4 The development of a diagnostic algorithm

A diagnostic algorithm aimed at distinguishing between symptoms and syndromes of depression (depressed and non-depressed children) but also including features of the two subtypes of childhood depression - "endogenous" and "negative cognitions" has been developed.

The questionnaire was invented primarily as a clinical interview instrument and the updated version also provides an algorithm for diagnosis of depressive syndromes of varying severity.

Research clinicians in child and adolescent psychiatry explored the distinction between symptoms and syndromes over the last decade, using diagnostic interviews or checklists.

The checklists do not only distinguish between depressive and non-depressive children, but also include features of the two subtypes of childhood depression, viz. "endogenous" and "negative cognitions".

The questionnaire consists of 13 items, with good evidence of validity, although it is argued that the validation levels have been inflated by the methods used to select them (Kolvin et al, 1992:1). (See discussion of instruments in 5.5.1.)

4.2.3.4.1 13 Items of the Diagnostic Algorithm

- Depressed mood
- Anhedonia
- Feeling unloved
- Weeping
- Loss of energy
- Loss of interest
- Loss of appetite
- Lack of concentration
- Sense of emptiness
- Depersonalisation
- Suicidal ideation
- Depressive thoughts
- Sense of hopelessness.

Utilising a diagnostic algorithm, the brief scale makes a useful contribution to symptomatic diagnosis of either marked, or moderate depression, especially when used by the less experienced clinician.

The inventory is used with a cut-off of 5 for moderate depression (Goodyer, 1995:121-122).

4.2.3.4.2 Problems with algorithms

Unfortunately, a fundamental drawback of this algorithm is the inability to incorporate criteria of functional impairment of each psychosocial or behavioural area, as such features contribute to improving the reliability and validity for diagnosis (Goodyer, 1995:122).

Developmental variations in the way children show depression are illustrated by the finding of Puig-Antich (1982) that up to a third of his depressed children, initially presented with disturbed behaviour (Dwivedi et al, 1997:14) before the development of a depressive disorder.

Goodyer, 1995:117 concluded that depressive syndromes in children differ in their nature and characteristics from those in adults, for example, somatic symptoms are often reported in younger children with depressive disorders.

It is essential to know more about the origins, nature, duration and course of the subsyndrome in child populations.

Finally, diagnostic determinations in psychology and psychiatry, rely mainly on the results of a clinical interview (Ezpeleta et al, 1997:432).

4.2.4 The "where"

The "where" refers to the need to investigate large community samples to identify comorbidity patterns and risk factors. The need to gather clinical histories and symptoms and investigate large samples of children to answer important questions about depressive disorders and to make a reliable diagnosis when in the presence of other psychiatric disorders (comorbidity) is explored. Risk factors for the development of depressive disorders in childhood will be summarised (Teeter et al, 1997:137).

4.2.4.1 The epidemiology of depressive disorders in primary school children

When referring to the growing prevalence of mental disorders in children, it should be noted that prevalence rates vary by age, gender, region, and social conditions and are influenced by whether or not functional impairment is taken as a criterion in addition to symptomatology.

The most significant trend over the past decade has been the shift towards structured interviews and DSM-III criteria as diagnostic measures.

Knapp:1997:5; Dwivedi et al, 1997:11, reported that about 1.8 to 2% of children aged 9 met the DSM-III Criteria for major depressive disorder and 2.5% met criteria for minor depression. Where depression is taken as a "symptom" rather than as a "disorder", the figure rose to 17.4%.

Kaplan et al, 1984 used the Beck Depression Inventory cut-off points in a sample of 11 - 18 year olds, and reported mild depression in 13.5%, moderate depression in 7.3% and a severe depression in 1.3% (Dwivedi et al, 1997:11).

All the findings of the above-mentioned study are in reasonable agreement with more recent research findings on major depressive disorder, where the Isle of Wight Study found an approximately 15% incidence of depressed mood. Referring to adult studies, Brown and Harris, 1978 reported the prevalence of depressed mood in female adults to be ± 20%, sufficient to disturb daily functioning (Dwivedi et al, 1997:11).

Goodyer, 1995:137 reported that diagnosis of depressive disorder was present in 17,9% of all children under age 18, who had been admitted to psychiatric hospitals. Referring to the rates of depression found in major studies (summary of community studies of depression), the prevalence estimates vary between 1.8 and 8.9%. Most studies used the DISC - (Diagnostic Interview for children and adolescents).

According to studies done on the outcomes of depressive disorders in psychiatrically referred children, depressed young patients tend to remain at risk for development of depression during their teenage years. Continuity of DSM-III diagnoses was detected from age 11 to age 15. Girls at age 11 with internalising disorder (anxiety and depressive disorders) were most likely to have internalising disorder at age 15 (Kovacs et al, 1998:47).

4.2.4.2 The effects of age on rates of depressive disorders

Recent epidemiological studies of the rate of depressive disorder by gender and age, according to DSM-III and DSM-IV-R criteria, reported the following:

- From studies of children under the age of 12, two of the three studies found a higher rate of depression in boys than in girls, while the Puerto Rican study found a slight excess for girls (Goodyer, 1995:131).

- Both community-based studies of children in which a straightforward comparison of the rates of depression in childhood and adolescence was made, offer no differences associated with gender or age (Goodyer, 1995:131).

Research Reports on the increased rate of depressed mood in children with lower socio-economic studies and youngsters from non-white ethnic groups are still undecided, as findings are inconsistent. These findings highlighted the findings of Mark et al, 1979 that general practitioners seem to fail to diagnose depressive disorders most easily in the young and in the more highly educated (Dwivedi et al, 1997:11).

4.2.4.3 Clinical studies of depressive comorbidity

Comparing the rates of comorbidity in children and adolescents with depressive disorders (Goodyer, 1995:128)

Psychiatric Disorders	Clinical studies (Rates of comorbidity)	Community studies (Rates of comorbidity)
Conduct disorder	6% - 40%	22 to 83%
Anxiety disorder	8% - 86%	30 to 75%
Attention deficit hyperactivity disorder	13% - 24%	0 to 75%

Comorbidity implies the presence of two psychiatric conditions, two different "disease processes" that are in operation in the same individual, implying that each condition has its own aetiology, pathogenesis and progression that characterise the individual disease (Goodyer, 1995:137).

Teeter et al, 1997:137 reported the following on depressive disorders and comorbidity:

- Kovacs et al, 1984 found in their sample of dysthymic disorder children that 36% of the dysthymic children also had anxiety disorder.
- Thisher, 1984 found that 42% of children with school refusal also had a low self-esteem and depressive symptoms.
- Biederman et al, 1992 reported that depressive disorders that occur with attention deficit hyperactivity disorder had an incidence level of ± 40%.
- Puig-Antich et al, 1982:659 found that approximately one third of his sample of pre-adolescents with major depressive disorder also met the criteria for conduct disorder.

Furthermore, Kovacs et al, 1997:190 reported that conduct disorder preceded the major depressive symptoms in 7% of a depressed sample as well as 11% of the sample of children with a dysthymic disorder. The author concluded that it is crucial that children should not only be evaluated for the presenting problem, but also for a possible depressive disorder and vice versa.

Large screening studies of school maladjustment in the United States indicated that in combined assessments made using teacher ratings and school achievement indices roughly 30% of primary school children are classified as at risk.

4.2.4.4 Risk factors for the development of depressive disorders

4.2.4.4.1 Parental depressive disorders

Children with depressive disorders frequently have been found to have parents suffering from mood disorders. Twenty-four percent of children who suffer from a depressive disorder were taken from 37 families in which at least one parent were found to be diagnosed with major depressive disorder. Moreover, the severity of depressive disorder in parents was strongly positively correlated with greater impairment in children (Teeter et al, 1997:139)

Hammen, 1990:173 found that a child had an 80% risk of developing psychopathology when both parents suffer from depressive disorders while when one parent was affected, the risk dropped to approximately 67%.

Weissman, 1987:747 found that a child who suffers from a mood disorder and was younger than 20 at onset was 1.6 times more likely to have a family history of depression compared to a normal population.

Goodyer, 1995:140 reported on several epidemiological studies from the United Kingdom, America, New Zealand and Canada that found an association between risk factors, e.g., low socio-economic status, high life stress, low academic achievement and various measures of family disruption and disharmony and the presence of a DSM-III diagnosis in children and adolescents. However, as confirmed by Kaplan et al, 1998:1245, no pattern of risk factors specifically associated with depressive disorder, has yet appeared.

The problem is that very little attention has been paid to various possible actions of risk factors and the way they interact to produce the endpoint of an identifiable depressive disorder.

The author concluded that the specific causal pathways to depressive disorders need to be identified by exploring developmental epidemiology in future.

4.2.4.4.2 Confiding friendship and peer relationships

Peer relationships imply the notion of social competence and are complex processes. (Refer to 2.2.3.4.)

Peer relations have become the focus of increasing attention as the peer group provides a unique developmental context for the child, stimulating social and cognitive growth (Wicks-Nelson et al, 2000:171).

Problems with peers are one of the most frequently mentioned problems in referrals to mental health centres and form an integral part of the diagnosis of a variety of disorders (internalising and externalising disorders).

There is some evidence that a confiding relationship decreases the risk of depression in adults who are exposed to recent undesirable life events (Goodyer, 1995:179).

An episode of depressive disorder increases the risk for subsequent friendship difficulties (Goodyer, 1995:183) and the presence of friendship difficulties and an absence of recent desirable achievements, increase the likelihood of anxiety and depressive disorders markedly.

Kovacs 1997:290 emphasised the importance of peer-group "causing" rejection as a triggering stressor and in "causing" depressive disorder that interacts with individual or person-specific vulnerabilities.

4.2.4.4.3 Early episodes of subclinical levels of depressive disorder

There is little doubt that vulnerability (risk factors) interacts with stressors (triggering agents) to lay the groundwork for depressive disorders. Prodromal manifestations for depressive disorder include states of feeling sad, miserable and

irritable. This dysfunction in regulation of negative emotions is likely to be a characteristic of individuals prone to depressive disorders (Kovacs, 1997:291).

4.3 In conclusion

The most sensitive method of assessment of the depressed child is the **clinical interview**. Children as young as 8 years of age are capable of reporting their own feelings and this results in a more accurate assessment of the child's mental state than interviewing the parents. Parents seem to give more objective information on externalising symptoms.

Children are more likely than adults to exhibit depressive disorder comorbid with other disorders. Children suffering from depressive disorders are 20 to 80 times more likely to experience another internalising (depressive and anxiety disorders) or externalising disorder (conduct and attention defiant hyperactivity disorder) (Teeter et al, 1997:273).

The importance of the early diagnosis and intervention of depressive disorders should be emphasised since they are of longstanding duration, extending into adulthood, and often complicated by suicidal attempts (Teeter et al, 1997:273).

5 Research methodology

5.1 Introduction

This chapter introduces the research phase; describing the research aims; objectives and hypotheses; research design; research population; pilot study and sample size. The method of data collection is also discussed.

5.2 Research aims of the main study

5.2.1 The aims of this study are as follows:

- To improve the early identification of depressive disorders in primary school children by the development of a screening instrument (referred to as phase I of the study)
- To improve accurate diagnosis of depressive disorders in children by refinement of DSM-IV diagnostic criteria to account for developmental stage (phase II of the study)
- To develop a schedule depicting stepwise strategies for appropriate assessment of depressive disorders based on different levels of care to improve mental health services for young people.

Phase I : To improve early identification

Several different screening instruments are to be assessed with a view to selecting the most appropriate screening instrument to be used as a tool for the identification of depressive disorders in diagnostic groups.

Phase II: To improve accurate diagnosis

The relationship is assessed between the components of DSM-IV-PLUS diagnostic criteria (see below) and age and developmental stage criteria for depressive disorders. Certain developmental symptoms (for children of a specific age group) might guide the clinician in the use of the DSM IV criteria.

Both teacher and doctor use the same screening instrument:

Refer to Appendix A and Appendix F. (For discussion of instruments see 5.5.1.)

The teacher-screening instrument consists of the following: (Appendix A)

- Assessment of learner's functioning
- Identification of psychosocial stressors
- Completion of modified behaviour checklists.

The doctor-screening instrument consists of the following: (Appendix F)

- Clinical interview instrument: Assessment of learner's functioning
- Identification of psychosocial stressors
- Completion of modified behaviour checklist.

Doctor clinical interview:

- DSM-IV-PLUS diagnostic criteria for depressive disorders consisting of the following components: (Appendix F) essential symptoms, (feeling anxious included), additional symptoms (worry included), effect on functioning and diagnosis according to diagnostic groups
- The age and developmental stage-related diagnostic criteria for depressive disorder (15 symptoms) (Appendix F)

5.3 Specific objectives of the main study

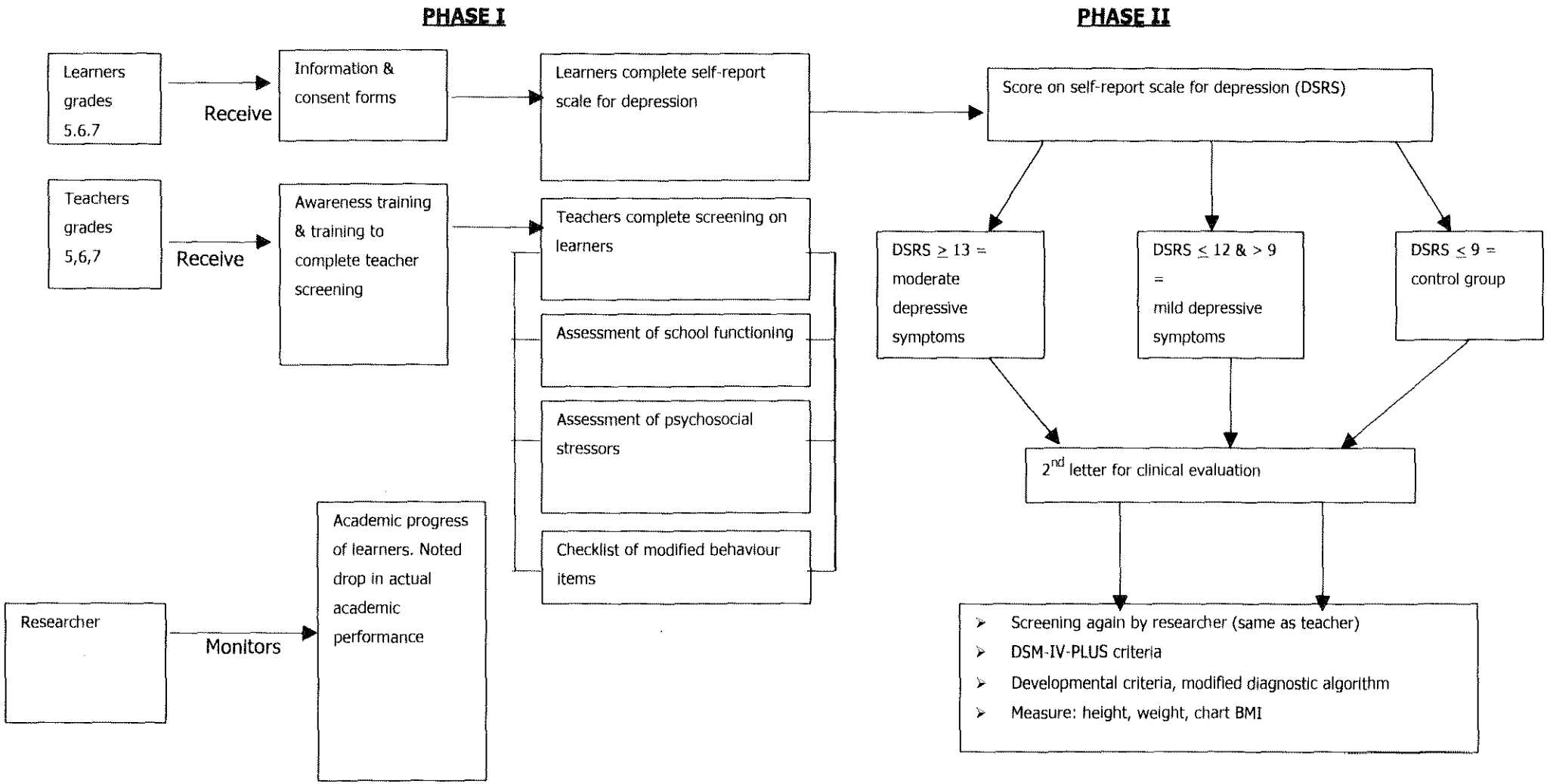
5.3.1 To improve early identification (Phase I)

- Assessment of different teacher-screening instruments
- Evaluating the sensitivity and observation skills of the teacher
- Evaluating the sensitivity of the teacher-screening instruments for identifying learners with a depressive disorder
- Researcher notes a drop in actual average academic achievement quarterly.

5.3.2 To improve accurate diagnosis (Phase II)

- Evaluating the sensitivity of developmental stage criteria to predict depressive disorders
- Evaluating the ability of the DSM-IV-PLUS criteria to diagnose depressive disorders during the clinical interview
- Plotting height and weight on growth charts (Body mass index charts)
- Evaluating the sensitivity of the modified diagnostic algorithm for diagnosis of depressive disorders in children.

5.4 Research design of the main study



5.4.1 Phase I

- The target group for this research included primary school children who first had to get consent from their parents in writing to enter the study.
- After written consent had been received the learners completed a self-report scale for depression in class under supervision of researcher.
- The teachers of the specific primary school children received awareness training on how to complete the teacher-screening instrument.
- The teacher then completed the teacher's screening instrument to assess the identified learners in respect of school functioning, assessment of psychosocial stressors, and behaviour.
- The researcher monitored and noted any drop in actual average academic performance between first and second, and first and third term.

5.4.2 Phase II

5.4.2.1 Depression Self-Rating Scale: (DSRS)

The depression self-rating scale was used to compare scores to identify 3 diagnostic groups.

The self-rating questionnaires were only available in English. Although the study population was representative of the demographic composition of the South African population, inclusion and exclusion criteria did ensure that only children with a suitable grasp of English were included in the study. The questionnaires had been phrased at a level appropriate for the age group targeted in this study.

Diagnosis 2 reflects a cut-off score of 13 and more, including children with moderate depressive symptoms (moderate depressive category).

Diagnosis 1 reflected a chosen cut-off score by the researcher and the score lies between 13 and 9. The researcher deliberately enlarged this mild depressive diagnostic category.

The reason for enlarging and focusing on this group with mild depressive symptoms is to identify the earliest depressive symptoms, and is in line with what Maria Kovacs 1997:292 described as the earliest prodromal manifestations of depressive disorder.

Diagnosis 0 reflected a DSRS score equal and lower than 9 and constituted a control or non-depressed group.

5.4.2.2 Second letter to child and parent

A second letter was sent to parents to inform them that their child needed to be evaluated clinically to exclude depressive disorder.

5.4.2.3 Doctor-screening instrument

The researcher completed the doctor-screening instrument – the same instrument as that completed by the teacher – during a clinical interview with both child and parent.

Changes in school functioning were measured on the functional screening instrument; a drop in average marks is measured between terms. If no homework is done, the measure is 5. If the child did his or her homework 50% of the time, the measure would be 3.

5.4.2.4 Completion of DSM-IV-PLUS diagnostic criteria for depressive disorder and developmental stage and age

The second part of the clinical interviews consisted of completion of the DSM-IV-PLUS criteria for depressive disorders, and the developmental stage- and age-related depressive symptoms.

DSM-IV-PLUS refers to existing DSM-IV criteria with two added symptoms: worry (an additional symptom) and feeling anxious (an essential symptom) (Frances, Task Force on DSM-IV, 1994:320 -323). Feeling anxious and worried are not

included in current DSM-IV diagnostic criteria, but were added because the mixed syndrome of depression and anxiety features is well described in research studies (Wicks-Nelson et al, 2000:152).

For the purpose of this research study, DSM-IV diagnostic criteria have been divided into different parts, e.g., essential features, additional features, pattern of depressed mood and effect on functioning. (Refer to Appendix F.)

DSM-IV criteria are the gold standard for the diagnosis of depressive disorders in children. However, specific age and developmental symptoms for children that had been identified, need to be assessed in this research in order to assist the clinician in the accurate diagnosis of depressive disorders for that specific age group.

Well-validated outcome criteria, such as the DISC-R (Diagnostic interview schedule for children - Revised) would have been the ideal instrument to use. However, it could not be used owing to time and financial constraints in a developing country (Cantwell et al, 1983:157).

The researcher tried to overcome the constraints by completing the study in two phases. The assessment process was split, with the teacher doing one part before the doctor evaluates the child.

Kenneth et al, 1998:176 found depressive symptom counting, impairment in functioning and duration as the three "gate-keeping" DSM-IV criteria for major depression, which also suggest a continuity of risk between subsyndromal and syndromal major depression.

Advantages of DSM-IV-PLUS criteria

This interview addresses chronology of symptoms, takes interplay between environmental stressors and emotional responses in account as well as developmental issues (Kaplan et al, 1998:1130).

Completion of developmental stage- and age-related depressive symptoms in the primary school child

Although child and adult depressive disorders present with similar affective cognitive, motivational, and vegetative symptoms as described in the fourth edition of Diagnostic and Statistical Manual IV, (DSM-IV, APA 1994), developmental psychopathologists suggest that depression manifests distinctly at each developmental phase and that initial depressive symptoms in children may not represent a unique syndrome (Ollendick et al, 1998:270-271). (See 3.2.3.)

This indicates there may be a difference in the clinical expression of depression at different ages or that there are independent depressive syndromes at different ages and/or stages of development (Goodyer, 1995:113).

In order to distinguish between depressive symptoms and syndromes, Kolvin et al, 1991:9; factor-analysed mental state data obtained from interviews using a modified version of the Kiddie-SADS, including children that were clinically referred between 9 and 16 years of age.

Verhulst, 1985:1, carried out a similar factor-analysis using data from the Child behaviour checklist completed by samples of boys and girls aged 6 - 11 and 12 - 16 in a province of Holland. These authors identified an empirically derived depressive syndrome in children of 6 - 11 years, with the main features of feeling unloved, unhappy, sad and depressed; possessing feelings of worthlessness; feeling persecuted; feeling lonely; worrying; having fears of school; talking suicidally; being suspicious; and having feelings of guilt and obsession.

This symptom list is incorporated in the developmental stage- and age-related symptoms in the research. (See Appendix F.)

5.4.2.5 Completion of growth charts

Growth 9 centile charts for height and weight, including body mass index centiles, are completed to identify depressed children who fail to make expected weight gains.

5.5 Instruments used in the main study

5.5.1 Discussion of instruments used in this study

Instrument 1 Depression Self Rating Scale (See 5.5.1.1 and Appendix D.)

Instrument 2 Teacher's Screening Instrument, i.e. Functional Screening Instrument for Depressive Disorders in Childhood (FSIDDC): Teacher's assessment of school functioning (See 5.5.1.2 and Appendix A.)

Instrument 3 Doctor's Screening Instrument (FSIDDC): Doctor's assessment of school functioning (See 5.5.1.3 and Appendix F.)

Instrument 4 Teacher's Screening Instrument (FSIDDC): Identification of Psychosocial stressors (See 5.5.1.4 and Appendix A.)

Instrument 5 Doctor's Screening Instrument (FSIDDC): Identification of Psychosocial stressors (See 5.5.1.5 and Appendix F.)

Instrument 6 Teacher's Screening Instrument (FSIDDC): Modified Checklist of Behaviour Items (See 5.5.1.6 and Appendix A.)

Instrument 7 Doctor's Screening Instrument (FSIDDC): Modified Checklist of Behaviour Items (See 5.5.1.7 and Appendix F.)

Instrument 8 Doctor's Clinical Interview: DSM-IV-PLUS Criteria for depressive disorders (See 5.5.1.8 and Appendix F.)

Instrument 9 Doctor's Clinical Interview: Developmental stage- and age-related depressive symptoms in primary school children (See 5.5.1.9 and Appendix F.)

Instrument 10 Modified diagnostic algorithm (See 5.5.1.10.)

Instrument 11 Growth charts for height and weight (Body Mass Index) (See 5.5.1.11.)

Instrument 12 FSIDDC : Actual drop in school marks (See 5.5.12 and Appendix A.)

5.5.1.1 Instrument 1

Name of instrument	Purpose	Description	Scoring	Origins of items	Population tested	Time frame	Evaluation
Depression self-rating scale **(DSRS)** (Corcoran et al, 1987:391)	Original To measure the extent and severity of depressive disorders in children. Currently used as a screening instrument to identify early depressive disorders.	An 18-item scale designed specifically to measure depression in children between the ages of 7 and 13. The items are written in simple language and response categories are not complicated. Symptom clusters: Includes somatic and physiological complaints, cognitive aspects of depression and moods.	Scored on a 3-point scale positively worded items from 0 to 2 and negatively worded items from 2 to 0. Validated against child-depression inventory. A sub-research project by intern psychologist, Erika Winkler testing the usefulness of the DSRS for South African primary school children (grade 5-7), to complete a master's thesis. (Winkler: 2000:80)	Initial items developed by identifying from the literature items associated with depressive symptomatology in childhood.	Developed for boys and girls across all income groups, United States and Britain. Research Population: South African boys and girls between ages 9 and 14.	How the child has felt the previous week.	Positive: Evaluate the specific clusters of depressive symptomatology in children. Save professional time and expense. Easy to understand and complete, short format. Limitations: Problems with informant reliability. Not applicable to patients who are not motivated to co-operate or who cannot read or understand the test. Does not quantify functional impairment. Influenced by the child's mood state and selective memory.

5.5.1.2 Instrument 2

Name of instrument	Purpose	Description	Scoring	Origins of items	Population tested	Time frame	Evaluation
Teacher-Screening Instrument							
Part A: **Teacher's assessment of school functioning** (Parker et al, 1997 : 58) Goodyer et al, 1995 : 140)	Developed for the purpose of this study	An 8-item scale designed to measure any decline in school functioning in learners between ages 9 and 14. Items written in simple language and easy to comprehend. Includes Different areas of functioning. Decline in average academic performance; interaction peer group and teacher; concentration; homework; sports and hobbies.	Decline in numbers represents the decline in average performance ranging from 1: no change 2: 5-10% drop 3: 11-20% drop 4: 21-30% drop Rest of school assessment : No change : 1 to severe decline : 5	Aussi form: (Affect Underpinned by Severity and Social Impairments, including corroborative witness and self-report.) Evaluating depressive mood and disability (impairment). An assessment form, to evaluate a decline in a child's school functioning. (Parker et al, 1997:58)	Grade 5, 6 and 7 primary school children.	Changes measured over the previous 12 months.	Positive Having the school impairment rated by a corroborative witness, the teacher, provides more objective and accurate information. The school environment represents a mini-work environment where academic achievements, interpersonal functioning and level of interest in hobbies and sports can be assessed.

5.5.1.3 Instrument 3

Discussion of instrument	Purpose	Description	Scoring	Original items	Population tested	Time frame	Evaluation
Doctor-Screening Instrument							
Part A: **Doctor's assessment of school functioning** (Goodyer, 1995 : 140) (Parker et al, 1997 : 58)	To assess any drop in school functioning. To assess the teacher's sensitivity insofar the decline in the learner's school functioning.	An 8-item scale designed to measure any decline in school functioning in learners between s 9 and 14. Items written in a simple language and easy to comprehend. Includes different areas of functioning at school. Average academic performance, interaction with peer group and teacher, homework, concentration, sports and hobbies.	Decline in school functioning: average performance ranging from 1: no change 2: 5-10% drop 3: 11-20% drop The rest of school assessment decline: No change: 1 Severe: 5	Aussi form (Affect Underpinned by Severity and Social Impairment including a corroborative witness and self-report) evaluating depressive mood and functional impairment. Researcher: Developed an assessment form specific for child's school functioning.	Grade 5, 6 and 7 primary school children.	Changes over the previous 12 months.	Positive: Having school impairments rated by a corroborative witness, the doctor interviewed both child and parent, assessing their perception of school functioning. Negative: The doctor had not observed the child in the classroom situation.

5.5.1.4 Instrument 4

Name of instrument	Purpose	Description	Scoring	Original items	Population tested	Time frame	Evaluation
Teacher-Screening Instrument							
Part B: **Identification of psychosocial stressors** (Goodyer, 1995 : 140)	Used as a screening instrument to identify psychosocial stressors that may be experienced by learners.	An 10-item scale designed to identify specific psychosocial stressors that may affect the learner	Scores were rated as "present" or "absent"	Initial items developed from the literature. Stressors associated with depressive symptomatology in childhood.	Primary school learners in grades 5, 6 and 7.	Stressors identified over the previous 12 months.	Positive: The form listed all the undesirable life events that may affect the learner, resulting in a depressive disorder. Limitations: Only a few adverse life events had been highlighted.

5.5.1.5 Instrument 5

Name of instrument	Purpose	Description	Scoring	Original items	Population tested	Time frame	Evaluation
Doctor-Screening Instrument							
Part B: **Identification of psychosocial stressors** (Goodyer, 1995 : 140)	Used as a screening instrument to: Identify psychosocial stressors experienced by the learners; Evaluate the sensitivity of the teacher towards problems his/her learner may experience.	A 10-item scale designed to identify specific psychosocial stressors the learner have been experiencing.	Scores were rated as "present" or "absent"	Initial items developed by identifying from the literature stressors associated with depressive symptomatology in childhood.	Grade 5, 6 and 7 primary school children.	Stressors identified over the previous 12 months.	Positive: The onset of depressive disorders might be the result of a number of events the learner had been exposed to; this form listed all the undesirable life events. Limitations: Only a few life difficulties had been highlighted.

5.5.1.6 Instrument 6

Name of instrument	Purpose	Description	Scoring	Original items	Population tested	Time frame	Evaluation
Teacher-Screening Instrument							
Part C: **Modified checklist of behavioural items** (Achenbach, 1991 : 1)	To assess a broad range of: Problem areas ranging from externalised: disruptive and hyperkinetic behavioural to internalised anxiety and depressive disorder symptoms.	The checklist is made up of 35 items, consisting of the different scales. The checklist presents items related to mood-anxiety-, hyperactivity-, conduct and oppositional behaviour problems. Items were mixed to avoid a biased response by teacher.	Scores were rated as "present" or "absent"	The items making up the different scales were a combination of items from the child behaviour checklist; and items identified from the literature as comorbid symptoms in depressive symptomatology.	Grade 5, 6 and 7 primary school children.	Behaviour as identified over the previous 12 months.	Positive: Identified specific problem areas that might otherwise be overlooked by comparing them to normal children of the same age group. Limitations: The checklist is not used specifically to make a diagnosis. Awareness training of teachers before the completion of the checklist was time consuming.

5.5.1.7 Instrument 7

Name of instrument	Purpose	Description	Scoring	Original items	Population tested	Time frame	Evaluation
Doctor-Screening Instrument							
Part C: **Modified checklist of behavioural items** (Achenbach, 1991 : 1)	To assess a broad range of problem areas ranging from externalised symptoms: disruptive, hyperkinetic behaviour disorders to internalised symptoms: anxiety- and depressive disorders symptoms. Evaluating the sensitivity of the teachers to the learner's classroom behaviour.	The checklist was made up of 35 items, consisting of the different scales. The checklist presents items related to mood-, anxiety-, conduct-, and oppositional behaviour problems. The different items were mixed to avoid a biased response.	Scores were rated as "present" or "absent"	The items making up the different scales were a combination of items from the child behaviour checklist and items identified from the literature Comorbid symptoms in depressive symptomatology.	Primary school children, grade 5, 6 and 7.	Behaviour as identified over the previous 12 months.	Positive: Identified specific problem areas that might otherwise be overlooked by comparing them to normal children of the same age group. Limitations: The checklist is not used specifically to make a diagnosis.

5.5.1.8 Instrument 8

Clinical interview	Purpose	Description	Scoring	Original items	Population tested	Time frame	Evaluation
DSM-IV-PLUS Criteria for Depressive Disorders (Frances et al, 1994 : 320-323)	To evaluate the sensitivity of a revised DSM-IV criteria for depressive disorders in children during the clinical interview.	A 47-item scale designed to evaluate the different components of a depressive disorder. Description: DSM-IV-PLUS consisted o: essential features (adding anxious), additional features (adding worry), effect on functioning and pattern of depressed mood.	Scores were rated as "present" or "absent"	DSM-IV diagnostic criteria were used as well as associated descriptive features of depressive disorders as described in the diagnostic and statistical manual of mental disorders plus the research criteria for other depressive disorder criteria sets.	Primary school children in grades 5, 6 and 7.	The previous 12 months.	Positive: Direct clinical interview of the child and parent provided a more accurate assessment of the child's mental state. DSM-IV criteria was revised and provided an important framework and common language for depressive disorder in childhood. Limitations: DSM-IV criteria were not sensitive or specific enough to detect depressive disorders in primary school children as the pattern of depressive symptoms varies with age and emotional development.

5.5.1.9 Instrument 9

Clinical interview	Purpose	Description	Scoring	Original items	Population tested	Time frame	Evaluation
Developmental stage- and age-related depressive symptoms in primary school children (Kolvin et al, 1991 : 9)	To evaluate the sensitivity of developmental stage criteria for depressive disorders in children during the clinical interview.	A 15-item scale designed to measure stage and age-related depressive symptoms in children between ages 9 to 14. Symptom clusters include: Specific mood symptoms, somatic complaints and worrying.	Scores were rated as "present" or "absent"	Combination of items from Verhulst and colleagues et al, 1985 presented an empirically derived depressive syndrome in 6 to 11 year olds, and other developmental symptoms identified from the literature with depressive symptomatology in children.	Original study: primary school children 6-11 Current study: Primary school children ages 9-14	The previous 12 months	Positive: These symptom clusters were discrete for this age group. Limitations: The impairment in school and interpersonal functioning were not measured. The instrument is not a clinical interview instrument. The instrument cannot distinguish between symptoms and syndromes.

5.5.1.10 Instrument 10

Clinical interview	Purpose	Description	Scoring	Origins of items	Population tested	Time frame	Evaluation
Modified diagnostic algorithm (Verhulst, 1985 : 1)	To develop a diagnostic checklist to distinguish between symptoms and syndromes in children suffering from depressive disorders.	A 13-item scale designed to evaluate the different clusters of depressive disorders, e.g., depressive cognitions, sleeping and eating disturbances.	Scores were rated as "present" or "absent" Summation of score with cut-off score of 5 reflects a moderate depressive disorder.	The modified diagnostic algorithm (Goodyer, 1995:121) was matched with corresponding symptoms on the DSM-IV-PLUS diagnostic criteria for depressive disorders and developmental stage- and age-related depressive symptoms.	Applied to children. Currently: Primary school children in grades 5, 6 and 7.	The previous 12 months	Advantages: A clinical interview instrument. Provides an algorithm for diagnosis of depression. Limitations: Inability to incorporate criteria of impairment of psychosocial and/or academic impairment.

5.5.1.11 Instrument 11

Name	Purpose	Description	Scoring	Origins of items	Population tested	Time frame	Evaluation
New 9 centile growth charts for height and weight and body mass index (Polnag et al, 1996 : 100)	To measure the actual height and weight of each child to identify those with failure to make the expected weight gain, as described in children suffering from depressive disorders.	The new 9-centile charts have 9 centile lines: each separated by 2/3s of a standard deviation. Both boys' and girls' weight and height are charted on the different growth charts distinctively. Body mass index Divide weight (kg) by square of height (m^2)	Weight and height were measured	The new 9-centile chart of the child growth foundation replaced the Tanner Whitehouse charts and reflect changing growth patterns of British children.	Primary school children in grades 5, 6 and 7.	Weight and height measured on the day clinical interviews were done.	Advantages: Early identification of failure to make expected weight gain. Body mass index charts weight/height as a reflection of increase in lean mass and/or obesity. Limitations: The new 9-centile growth charts were developed for British children.

5.5.1.12 Instrument 12

Functional Screening Instrument	Purpose	Description	Scoring	Origins of items	Population tested	Time frame	Evaluation
Decline in actual academic achievement, school functioning (Kaplan et al, 1998 : 1283)	To measure the drop in average academic school marks as an indication of depressive disorders.	Actual average academic marks were compared between the different school terms.	Decline in average school marks between school terms.	Average school marks as reported in school reports.	Primary school children grade 5, 6 and 7.	Average school marks were compared over the different terms (12 months)	Advantage: School performance is the prime barometer for healthy mental functioning. Decline in average academic performance is an early indication of depressive problems.

5.6 Procedures followed in the main study (Summary)

5.6.1 Phase I: To improve early identification

- Screening form for teacher (Refer to Appendix A.)
- Information to teacher (Refer to Appendix B.)
- Information and consent to parent (Refer to Appendix C.)
- Self-Rating Scale for depression (DSRS). (Refer to Appendix D.)

5.6.2 Phase II: To improve accurate diagnosis

- Second letter to parent about clinical evaluation (Refer to Appendix E.)
- DSM-IV-PLUS diagnostic criteria for depressive disorder (Refer to Appendix F.)
- Developmental stage criteria for depressive disorder (Refer to Appendix F.)
- Screening form for researcher (same as for teacher) (Refer to Appendix F.)
- Modified diagnostic algorithm constructed (Refer to 6.4.3) from different items on DSM-IV-PLUS criteria for depressive disorders.

5.7 Procedures followed in the main study

5.7.1 Phase I: To improve early identification

Awareness training: Train teachers to become aware of the symptoms and signs of depression and the importance of decline in school functioning, classroom behaviour and stressors in the child's environment.

Instruct teachers to send the letters of information and consent to parents.

Train teachers to complete screening instrument on learners who obtained consent. These are the school-functioning assessment, the psychosocial assessment and behavioural symptoms.

Instruct the class teacher how to assist the child in completing the self-rating scale for depression.

Collect all the results of the completed screening instruments (done by teachers), and the completed self-rating scales.

Researcher charts academic progress (quarterly academic achievement).

5.7.2 Phase II: To improve accurate diagnosis

In order to improve an accurate diagnosis, the following steps are evident:

DSRS scores are used to identify 3 diagnostic groups of depressive disorders:

- Test group 1: Mild depressive symptoms $10 \leq$ DSRS ≤ 12 (scores 10, 11 and 12)

  Test group 2: Moderate depressive symptoms DSRS ≥ 13 (scores 13 and more)

  Control group: No depressive symptoms DSRS ≤ 9 (scores 9 and less than 9)
- Teachers send second letter of information to parents of the identified sample with a depressive disorder and control sample to inform them about the appointment for clinical evaluation.
- Researcher does screening instrument on the total clinical sample Researcher does same screening test as teacher, (school functioning assessment, psychosocial assessment and behavioural symptoms)
- Researcher does DSM-IV-PLUS criteria for depressive disorders (clinical interview).
- Researcher does developmental stage criteria for depressive disorders (clinical interview).
- Researcher charts the weight and height and identifies failure to make expected weight gain.
- A modified diagnostic algorithm has been compiled from data collected in DSM-IV-PLUS and developmental-stage questionnaire.

5.8 Pilot Study

A pilot study was performed in order to refine the research methodology for the main study.

5.8.1 Specific objectives of pilot study

The term "learner" is used in the educational environment (school) and equals the term "child", used in the psychological context. Both may be used alternatively depending on the specific context. The specific objectives of the pilot study are the same as those specified for the main study.

5.8.2 Research design of the pilot study

The research design of the pilot study is the same as that used in the main study.

5.8.3 Instruments used in the pilot study

The research instruments used in the pilot study are the same as those used in the main study.

Alongside this pilot study, a sub-research project by intern psychologist Erika Winkler for a Masters degree in Psychology, University of Pretoria, took place in order to validate the depression self-rating Children's Depression Inventory (CDI) scale for black South African primary school children (grade 5 to grade 7).

The results of her research confirmed the validity of the depression self-rating scale for black South African children (Winkler, 2000:80).

5.8.4 Procedures followed in the pilot study

The procedures followed in the pilot study are the same as those used in the main study.

5.8.5 Pilot study population and sample

The population applicable comprised grades 5, 6, and 7 primary school children in Atteridgeville, west of Pretoria, Gauteng. The sample consisted of primary school children in grade 5, 6 and 7 attending two schools, e.g., Walton Jameson and Esikishini Primary schools in Atteridgeville suburbs, west of Pretoria , in Gauteng.

The choice of the sample was determined by

the lower socio-economic status, and its role in the development of depressive disorder; and

the demographic composition of the previously disadvantaged black group of children.

5.8.6 Results of the pilot study

Of the 500 consent forms sent to both schools, 273 forms were returned, a response rate of 50%, and 273 learners completed the Depression self-rate scale (DSRS). Forty percent (40%) scored a 13 or higher on the DSRS, and were identified as being significantly depressed.

The motivation of the teacher to complete the screening instruments was low; and only fifty forms out of the 273 forms were returned (response rate of 18%).

Clinical interviews were performed on 20 out of the 273 children who scored 13 or higher on the DSRS and were found to be clinically significantly depressed.

Five children with a score of lower than 10 were clinically evaluated, and were found to be non-clinically depressed.

5.8.7 Discussion: Problems and limitations of the pilot study

Problems were encountered in the completion of the DSM-IV diagnostic criteria form as it was found to be user-unfriendly. Amendments were made to the DSM-IV-PLUS diagnostic criteria questionnaire to make it more user-friendly. The low response rate of the teachers for the screening instrument was thought possibly to reflect ignorance among the teachers of the symptoms under consideration, and influenced the researcher to conduct awareness training among teachers in the main study.

5.9 Main study population and sample

5.9.1 Population of main study

The population applicable to this research study may be defined as primary school children in grades 5 to 7, attending government primary schools in western Pretoria in Gauteng. Compared to other provinces, Gauteng has the largest population density of 365 persons per square kilometer (Erasmus, 1994:96).

5.9.2 Sample of main study

A sample is a collection of some, but not all, of the elements of the population under study, and is used to describe the population (Levin, 1987:40). (Refer to 5.10.)

The sample consisted of primary school children, boys and girls, in grades 5, 6 and 7, of all races, attending two schools, viz. the Kwaggasrand and Danville primary schools in western Pretoria, Gauteng.

The choice of sample was determined by the following:

- The lower socio-economic status and its role in the development of depressive disorder
- The demographic composition of our country as far as race is concerned (both schools consist of various races)

The Pretoria West region forms the main part of the Child- and Adolescent Units at Weskoppies Psychiatric Hospital drainage area as far as referrals are concerned.

600 consent forms were sent to both primary schools, 300 each; 91 forms were returned from Danville Primary School, and 110 forms were returned from Kwaggasrand Primary School. The total sample size was 201. All languages were included. As these two primary schools are in close proximity to each other, no further distinction will be made between the schools.

5.9.3 Inclusion and Exclusion Criteria used in the main study

5.9.3.1 Inclusion criteria

Primary school children in grades 5, 6 and 7 between the ages of 9 and 14 years of all races who attended two primary schools in Pretoria, Gauteng and who were able to complete and participate in the above-mentioned procedures. Data were collected over a 4-month period (June to September 2000).

5.9.3.2 Exclusion criteria

Primary school children in grades 5, 6 and 7 who could not comprehend or complete the questionnaires, or who did not return the consent forms.

5.9.4 Response rate of the main study

From 600 consent forms that were sent out to parents, 201 gave consent, a response rate of 33.5%. Of these 201 children included in the research study, only 165 children completed the study.

- 201 Depression self-rating forms (100%)
- 201 Teacher-Screening forms (100%)
- 165 Doctor Clinical Interviews (83%)
- Thirty-six children moved away before clinical interviews could be done, reflecting a highly mobile if not disrupted population (17%).

5.9.5 Demographic information of sample in the main study

5.9.5.1 Age of children included in research study

Age in years	Total number of children	Percentage of respondents
10	20	12
11	51	31
12	62	38
13	23	14
14	9	5
Grand Total	165	100

5.9.5.2 Gender of children included in research study

Gender	Total number of children	Percentage of respondents
Male	85	51.52
Female	80	48.48
Grand Total	165	100

5.9.5.3 Home language of children included in research study

Race	Total number of children	Percentage of respondents
Afrikaans	107	64.84
Sotho	27	16.36
Zulu	6	3.60
Portuguese	2	1.26
Venda	1	0.60
English	3	1.81
Sepedi	2	1.21
Tswana	14	8.48
Xhosa	1	0.60
Tsonga	1	0.60
Grand Total	165	100

5.9.5.4 Racial subgrouping of the sample

The importance of addressing cultural differences and similarities in the aetiology, expression and phenomenology of depressive disorders has been highlighted by Marsella et al, 1985:299. Manson et al, 1990 described somatic complaints and interpersonal difficulties as common in depressed Native American children, and cognitive and affective complaints in depressed European children. In contrast, Schwab et al, 1978:190 argued that measures used in Western societies are adequate for assessing depression in many cultures. Cross-cultural research supports the above-mentioned assertion (Swanson et al, 1992:669).

Although the researcher supports the view of Swanson et al, 1992:669, the decision was made to examine the differences between the racial subgroups in case it would affect the final analysis.

Racial subgrouping of the sample

Number of children	Race
113	European
52	Non-European
Total 165	Total sample

5.10 Defining the research project qualitatively

This research project is qualitatively defined as a field-processing endeavour; because any quantitative issue, such as 100% sample representation of the population in question, is beside the point.

Quantitative representation and quantitative association in terms of sampling error are not prerequisites for qualitative research by means of which knowledge of and insight into psychological associations between variables are gleaned.

5.11 Methods of statistical analysis

The following issues are to be addressed in the research:

- Will the DSRS categories identify the mild to moderate depressive group of disorders?
- Will the moderate to severe depressive group show a drop in school marks?
- How will the results of the teacher-screening instrument compare to those of the doctor?
- What will the relationship be between the essential and additional features of the DSM-IV and the different diagnostic groups of depressive disorder?
- Will the children in the moderate depressive groups respond to the specific age and developmental stage-related depressive symptoms?
- Which of the different variables have an influence on the diagnosis of depressive disorders?
- Which combination of variables will be the most sensitive in predicting a depressive disorder?
- Will a syndrome of mixed depression and anxiety features emerge from this research?

An explanation of Loglinear modelling of a (frequency) contingency table

A regression model is fitted with the dependent variable as the natural logarithm of the frequencies and the independent variables of the factors (rows, columns, etc.). The estimated standardised loglinear parameters can be interpreted on a z-scale (percentiles on a standardised normal distribution). This allows for interpretation of marginal frequencies as well as the important interaction terms in a contingency table. Usual practice is to include only significant factors in a hierarchical manner, e.g., if interaction A*B is included then the main factors A and B will also be (Steyn et al, 1994:564).

5.11.1 Statistical methods used: Phase I

Name of Statistical test	AIM
Phase I: Chi-Square Test on Two-way frequency tables Chi-Square test of DSRS diagnostic categories by diagnostic groups	To determine dependence between two or more categorical variables
Spearman correlation analysis on variables Comparing doctor and teacher assessments: Funct, F_1 Check, Stress, OD, CD, ADHD, Anx, Dep	To describe a relationship between two ordinal variables
Kruskal-Wallis one-way ANOVA Comparing doctor and teacher variables: D_{F1}, $TF1_F$ DFunct, Tfunct, Dstress Dcheck, P_{1-2}, P_{1-3} (drop in marks) DSRS, categories	Comparing doctor and teacher variables between diagnostic groups Comparing DSRS variables (according to diagnostic categories) between diagnostic groups
Two-way frequency procedure: chi-square test on two-way frequency tables: DF_1 (Doctor's assessment of drop in average marks) by diagnostic groups	To determine dependence between two categorical variables
Loglinear analysis: Interaction between DF_1 TF_1 and DSRS with diagnostic categories	Investigating the interaction between categorical variables in a frequency table.
Wilcoxon Signed Rank Test: Doctor versus Teacher: Funct, F_1, OD, CD, Anx, Dep, ADHD	Comparing doctor versus teacher evaluations
Wilcoxon Signed Rank Test: racial subgroups, diag, stress, funct, check, DSRS, develop symptoms	Comparing racial subgrouping for the two sets of raters separately to assess whether racial differences should be accounted for in the rest of the study.

The probabilities used will be reported with the results.

5.11.2 Statistical methods used: Phase II

Name of Statistical Test	AIM
Spearman correlation analysis between variables: Comparing clinical interview variables: Essential, additional, effect on functioning, diagnosis and developmental stage criteria	To describe a relationship between two ordinal variables
Kruskal-Wallis one-way ANOVA: Comparing the variables between diagnostic groups: Developmental stage, total and individual symptoms	Comparing the developmental stage (total and individual symptoms) between diagnostic groups
Spearman correlation analysis between variables: Comparing different aspects of the doctor's clinical interviews: DSM-IV-PLUS: Essential, additional, effect on functioning, diagnosis and developmental stage (total)	To describe relationship between two ordinal variables
Spearman correlation analysis between the different variables: Doctor's screening variables (Funct. F1, check, stress, OD, CD, ADHD, Anx, Dep) and the DSM-IV-PLUS clinical interview)	To describe a relationship between two ordinal variables
Chi-square analysis on two-way frequency procedure: Chi-Square analysis for developmental-stage criteria by diagnostic groups	To determine dependence between two or more categorical variables
Chi-Square analysis on two-way frequency procedure: Chi-Square analysis of the essential features of DSM-IV-PLUS for the individual symptoms: worry, and feeling anxious	To determine dependence between two or more categorical variables
Kruskal-Wallis one- way ANOVA comparing total symptoms from additional -and essential from DSM-IV-PLUS and developmental symptoms by diagnostic groups	Comparing the variables between diagnostic groups
Loglinear analysis: Interaction between Diagnostic Algorithm (total score) and diagnostic groups, also individual symptoms: feeling anxious (essential) and worry (additional) as well as individual symptoms of the developmental stage, e.g,. sad appearance, feeling lonely, somatic complaints, worry. Loglinear result $\geq \pm 2.5$ is significant.	Investigating the interaction between categorical variables in a frequency table.
Logistic regression: Stepwise selection procedure Identify the smallest number of variables to best predict the diagnosis	To identify the combination consisting of the smallest number group of parameters which could effectively predict the diagnosis.
Full model (all parameters): logistic regression	Determine the most significant factors when all factors are considered simultaneously.
Stepwise logistic regression: essent-, addit-, develop-, symptoms	To determine the best set of combination of symptoms for diagnosis of a depressive disorder.

5.12 Ethical considerations

Approval of the study was received from the Research Ethics Committee of the Faculty of Health Sciences, University of Pretoria, Pretoria Academic Hospital, and from Mr Pillay (Head of the N3 District) of the Gauteng Department of Education.

5.12.1 Problems encountered but resolved in receiving ethical approval

- The corrected format of the consent form as required by the Ethics Committee as well as informing the patient and parents of her/his right to withdraw consent at any time is presented.
- The researcher stated that the research would not be harmful for the patient.
- The researcher ensured that the constitutional rights of the parent and child were protected and that the questionnaire would not impose the risk of emotional intrusion.

5.13 In conclusion

The research methodology, clinical instruments and methods of statistical analysis that are used in this research have been discussed.

These include:

- The research aims of the main study
- Specific objectives of the study
- The research design
- The instruments used to gather data (Instrument 1 - 12)
- Procedures followed
- Results of the pilot study
- Discussion of the research population and sample
- Definition of the research project in qualitative terms
- Methods of statistical analysis
- Ethical considerations.

The descriptive analysis with presentation of results follows in the next chapter.

6 Presentation of results – descriptive analysis

6.1 Introduction

This chapter contains the results of the descriptive analysis. The descriptive analysis intended to help the researcher get a feel for the general nature of the variables and the observed interrelationships among them. No inference can be made at this stage until the statistical significance of the data has been tested.

6.2 Self-report measure of depressive symptomatology in childhood: DSRS

The Depression Self-Rating Scale (DSRS) scores were applied as follows:

DSRS scores	Type of depressive disorder	Diagnostic categories
≥ 13	Clinical depressive disorder	2
$\leq 12; \geq 10$	Mild depressive disorder	1
≤ 9	No depressive disorder	0

6.2.1 Diagnosis according to DSRS score with the percentage of respondents (See figure 1)

DSRS scores	Diagnostic categories	Percentage of respondents	Number of respondents
≤ 9	0	45.45	75
< 12; ≥ 10	1	24.24	40
≥ 13	2	30.31	50
Grand total		100	165

6.2.2 Specific DSRS–item responses in the "sometime" category

Items of depressive symptomatology with "sometime" response	Percentage Respondents	
I get tummy ache	60.00	99
I feel very bored	54.55	90
I feel like crying	53.94	89
I have horrible dreams	53.94	89
I don't look forward to things as much as I used to	53.33	88
I am not good at things I do	48.48	80
I never feel like going out to play	46.06	76
I can never stick up for myself	44.85	74
I am not easily cheered up	42.42	70
I don't enjoy things I do as much as I used to	40.00	66
I feel so sad I can hardly stand it	38.18	63
I don't have lots of energy	36.36	60
I feel very lonely	31.52	52
I never sleep well	30.91	51
I don't like talking with my family	29.09	48
I don't enjoy my food	27.27	45
I think life is not worth living	24.24	40
I feel like running away most of the time	23.03	38

6.2.3 Specific DSRS–item responses in the "most of the time" category

Items of depressive symptomatology with a "most of the time" response	Percentage respondents	Number of respondents
I feel like running away	71.52	118
I don't enjoy my food	69.70	115
I don't like to talk with my family	69.09	114
I don't sleep well	64.24	106
I think life is not worth living	63.03	104
I don't enjoy the things I do as much as I used to	56.97	94
I feel lonely	55.76	92
I feel so sad I can hardly stand it	53.33	88
I don't have lots of energy	50.91	84
I don't want to go out to play	49.70	82
I can't stick up for myself	49.09	81
I am not good at things I do	47.27	78
I don't look forward to things as much as I used to	44.85	74
I am not easily cheered up	44.24	73
I feel like crying	36.36	60
I have horrible dreams	32.12	53
I get tummy aches	29.09	48
I feel very bored	27.88	46

6.3 Screening instrument: Comparing the results of the doctor with those of the teachers

6.3.1 Percentage drop in average school marks : teacher versus doctor

Drop in average school marks as rated by the teacher and doctor

Degree of decline according to numbers	Drop in average performance (percentage)	Percentage of respondents by teachers	Number of respondents	Percentage of identified learners (doctors)	Number of respondents
1	None	84.15	51	80.85	49
2	5-10	47.85	29	59.40	36
3	11-20	26.40	16	16.50	10
4	21-30	6.60	4	3.30	2
5	31-40	0	0	4.95	3
Grand Total		100	165	100	165

As seen from this table, teachers reported no drop in school marks in 84% of respondents and doctor in 80.85% of respondents.

The teachers were more accurate in reporting on a drop in average school marks.

6.3.2 Items of decline in school functioning: teacher versus doctor

6.3.2.1 Mild decline in school functioning (5-10%)

Assessment of learner's decline in school functioning

Items of school functioning	% of learners as rated by teacher	Number of learners as rated by teacher	% of learners as rated by doctor	Number of learners as rated by doctor
Decline in interest towards sports and hobbies	21	42	26	43
Increasingly more absent from school	24	48	23.6	39
Decline interaction with authority	25.5	51	16.4	27
Problem with concentration in class	27	54	43.0	71
Decline in self care	27	54	19.4	32
Decline in average marks	29.44	58	35.8	59
Negligence in doing homework	30.5	61	37.0	61
Decline in peer-group interaction	40	80	29.1	48

This table showed the advantage of direct observation by the teacher of peer-group interaction (40%), while the doctor had to rely on information given by the child and parent (29%).

The teachers were more sensitive in their observations of peer-group interaction owing to their advantage of observing the child in the classroom.

6.3.2.2 Moderate to severe decline in school functioning: teacher versus doctor (11-40% combined)

(The 11-40% refers to the combination of three categories in the screening form – categories 3, 4 and 5)

Assessment of learner's decline in school functioning : moderate to severe decline (11-40%)	% of learners as rated by teacher	Number of learners as rated by teacher	% of learners as rated by doctor	Number of learners as rated by doctor
Decline in self care	15	30	5	9
Increasingly more absent from school	17	33	15	13
Decline in average marks	19	38	14	26
Decline in interest towards sports and hobbies	19	38	84	14
Decline in interaction with authority	27	54	10	17
Decline in peer-group interaction	37	71	15	25
Negligence in doing homework	38	76	21	34
Problem with concentration in class	42	84	21	34

Both teachers and doctors rated a high percentage of learners with concentration problems in class. The teacher's high ratings of problems with peer-group interaction in class showed the value of direct observation.

6.3.3 Identification of psychosocial stressors

6.3.3.1 Identification of psychosocial stressors: teacher versus doctor

	% of respondents rated by teacher	Number of respondents rated by teacher	% of respondents rated by doctor	Number of respondents rated by doctor
1. Sexual abuse	2	4	6.1	10
2. Parental mental illness	3	6	18.9	31
3. Drug/alcohol abuse by learner	3	6	1.8	3
4. Physical abuse	6	12	6.1	10
5. Major school changes	12	24	17.6	29
6. Parental drug/alcohol abuse	14.5	29	19.4	32
7. Parental divorce	17.5	35	28	46
8. Peer group rejection	18.5	37	17.7	29
9. Family disruption	28.5	57	38.2	63
10. Poor socio-economic situation	38	76	39.4	65

The table showed that the direct clinical interview increased the identification of psychosocial stressors in the child.

6.3.3.2 Psychosocial stressors as identified by the doctor

Number of stressors per child	Diagnostic group	Mean
The average child had less than one stressor	0	0.787
The average child had nearly 2 stressors	1	1.93
The average child had 3½ stressors	2	3.5

The researcher included substance abuse as a psychosocial stressor for depressive disorders. Although already a sign of psychopathology, substance abuse may be the result of self-medication in the depressed child (King et al, 1996:743).

This study demonstrated an average of 3.5 stressors in the moderate depressive group. In other research, more than 4 stressors were documented as simply too many for healthy functioning (Barocas et al, 1985:433) (Samerhoff et al, 1993:80).

However different psychosocial stressors were used in the research. (Refer to 2.2.3.3.)

6.3.4 Modified behaviour checklist items: Teacher versus doctor

The following depressive and comorbid psychiatric symptomatology was identified by the teacher and doctor: **(See also figures 2, 3, 4, 5, and 6.)**

Oppositional Defiant Signs and Symptoms	Percentage of respondents *		Conduct Disorder: Signs and Symptoms	Percentage of respondents		Anxiety Disorder: Signs and Symptoms	Percentage of respondents		Attention Deficit Hyperactivity disorder: Signs and Symptoms	Percentage of respondents		Depressive disorder: Signs and Symptoms	Percentage of respondents	
	T	D		**T**	D		**T**	D		**T**	D		**T**	D
Tantrums	**8**	16	Cruel to animals	**3**	1	Headaches	**6**	38	Fidgets with hands	**10**	25	Suicidal	**0.5**	11
Threatens others	**13**	10	Truancy	**3**	6	Stomach aches	**6**	39	Difficulty awaiting turn	**13**	19	Over tired	**5**	26
Stubborn	**21**	30	Alcohol/drugs	**3**	2	Fears school	**7**	7	Interrupts others	**17**	18	Cries	**10**	46
Swears	**23**	12	Runs away	**4**	7	Fears to be alone	**11**	31	Often leaves seat	**26**		Unhappy	**24**	38
Fights	**28**	28	Sets fires	**5**	6	Seems worried	**26**	50	Forgetful	**33**	36	Irritable mood	**27**	51
Disobedient	**30**	21	Steals at school	**5**	5	Shy	**32**	39	Careless mistakes	**34**	42	Feels alone	**29**	30
Argues	**32**	36	Destroys property	**7**	5	Restless	**32**	29	Distracted by outside stimuli	**41**	45	Withdrawn	**29**	22
(See figure 2)			(See figure 3)			(See figure 4)			(See figure 5)			(See figure 6)		

* PERCENTAGE OF CHILDREN IDENTIFIED BY TEACHER and/or DOCTOR ON BEHAVIOUR CHECKLIST ITEMS

As far as oppositional defiant symptoms are concerned, both teachers and doctors reported that 28% of respondents experienced the symptom *fighting*. However, the teacher reported 50% of children being disobedient while the doctor only reported the symptom in 21% of cases. On depressive disorder symptoms the doctor reported many more respondents to be depressed in comparison with the teacher, e.g., 46% of children with the symptom *cry*, 38% with the symptom feel *unhappy* and 51% with the symptom *experience irritable mood*.

Similar ratings by teachers and doctors on most of the items of the behaviour checklist showed that teachers did benefit from the initial training sessions.

6.4 Clinical Interview Instrument

Three parts were distinguished:

- DSM-IV-plus criteria for depressive disorders
- Developmental-stage and age-related depressive symptoms
- Modified diagnostic algorithm for diagnosis of moderate depressive disorders.

6.4.1 DSM-IV-PLUS criteria for depressive disorders

6.4.1.1 Essential symptoms of depressive disorders as reported by the doctor

- Of the respondents, 50% reported a change in mood to irritability, 48% to a depressed mood, while 50% reported a feeling of anxiousness or had somatic complaints.
- Of the respondents, 68% reported a loss of interest in activities or pleasure.

6.4.1.2 Additional symptoms of depressive disorders as reported by the doctor

Additional Symptoms	Percentage Respondents	Number respondents
Diminished ability to concentrate	55.2	91
Worry	49.7	82
Irritability	49.1	81
Being easily moved to tears	47.3	78
Sleep pattern disturbances	37.6	62
Decreased energy	37	61
Feelings of worthlessness/guilt	26.1	43
Weight changes	23.2	38
Psychomotor changes	16.4	27
Feelings of hopelessness	12.8	21
Anticipating the worst	9.7	16
Thoughts of death/suicide	8.5	14
Hypervigilance	24.2	40

6.4.1.3 Symptom patterns of a depressed or an irritable moo:

- Of the children, 69% reported a depressed or irritable mood for most of the day, more days than not.
- The presence of depressive symptoms during the previous year was reported by 21%.
- In 18% of children, the depressed mood was triggered by a psychosocial stressor.

6.4.1.4 Impairment of functioning

Of the children, 33% reported clinically significant impairment in school functioning and interpersonal functioning, while 40% reported a temporary decrease in school and social functioning.

6.4.1.5 Diagnostic groups

The following different categories of DSM-IV depressive disorders were diagnosed by the doctor:

- Major depressive disorder
- Dysthymic disorder
- Minor depressive disorder
- Recurrent-brief depressive disorder
- Mixed anxiety depressive disorder
- Adjustment disorder with depressed mood.

For the purpose of this study, mild depressive disorders refer to subsyndromal depressive disorders based on short duration, lesser intensity and constellations of depressive symptoms with impairment in functioning that do not meet the DSM-IV criteria. These mild depressive disorders also include the following DSM-IV diagnostic categories:

Minor depressive disorder, recurrent-brief depressive disorder, mixed anxiety depressive disorder, adjustment disorder with depressed mood.

In cases where psychosocial stressors were present, the specific period of "within 3 months or resolving within 6 months" was difficult to establish. The difficulties in conceptualising valid diagnostic criteria for children are described (Minde et al, 1994:324). Furthermore Kendler et al, 1998:176 noted that little is known about the boundaries between major depression and subsyndromal states. The authors (Kendler et al, 1998:176) found little empirical support for the DSM-IV requirements for 2-week-duration, five-symptom, clinically significant impairment; and that diagnostic criteria of DSM-IV may be a diagnostic convention imposed on a continuum of depressive symptoms of varying severity and duration.

The study of Goodman et al, 2000:761 supports the growing body of literature that is questioning the distinctiveness of major depressive disorders and dysthymic disorders in children and adolescents.

Children experienced problems in accurately describing their mood patterns, as well as the exact length of their mood episode.

Wicks-Nelson et al, 2000:152 described a syndrome of mixed depression and anxiety features emphasising the issue that depression manifests itself differently in children. The researcher focused on children who exhibit a constellation of depressive symptoms, whether or not they meet the DSM-IV criteria for mood disorders; presenting with extreme symptoms of depressions, however measured or defined.

It is not clear whether the current DSM-IV diagnostic criteria represent the critical cut-off points for depressive disorders in children.

Children cannot remember the pattern and time period of depressive or irritability symptoms.

Not enough children were identified for each of the original DSM-IV diagnostic categories.

How best to define and classify depression in children remains the focus of ongoing research. Many children who fall short of meeting diagnostic criteria may still exhibit impairment in their everyday functioning.

6.4.1.5.1 The establishment of diagnostic groups of depressive disorders

The researcher opted to work with constellations of depressive symptoms, whether they corresponded with the specific DSM-IV disorder classification or not, incorporating a decline in daily functioning (school performance and interpersonal interaction).

Diagnostic categories were developed to distinguish three diagnostic levels of depressive disorder:

- No diagnosis : Diagnosis 0

- Mild depressive disorder or early depressive symptoms: Diagnosis 1
- Clinically significant diagnosis: Diagnosis 2.

Diagnostic group 2 (moderate depressive disorder) represented the only category that represents a serious illness with long duration, and included dysthymic disorder and major depressive disorder with recurrent episodes from the DSM-IV diagnostic classification.

Diagnostic group 1 (mild depressive disorder, refers to subsyndromal depressive disorders) represented the rest of the DSM-IV diagnostic categories that consisted of the less serious depressive illnesses of shorter duration. Diagnostic group 1 included the minor depressive, recurrent-brief, mixed anxiety depressive disorder and adjustment disorder with depressed mood. In addition, some children who suffered from a constellation of depressive symptoms coupled with impairment in functioning, and who did not meet any of the DSM-IV criteria for any of the above DSM-IV diagnostic categories, were grouped into the mild depressive disorder group.

6.4.1.5.2 Matching the diagnostic groups (0,1,2) with DSM-IV-PLUS diagnostic categories according to the percentage of respondents

Diagnostic Groups of Depressive Disorders		Known DSM-IV diagnostic Categories	Percentage of children (100)	Number of children N = 165
0	No diagnosis	No depressive disorder symptoms or signs	27	45
1	Mild depressive disorder	Minor Depressive disorders Recurrent brief depressive disorder Mixed anxiety depressive disorder Adjustment disorder with depressed mood	52	87
2	Clinically significant depressive disorder	Major depressive disorder Dysthymic disorder	20	33

Children with a diagnosis of 1 (mild depressive disorder) represented a high percentage of 52%. This group was deliberately chosen to be large as these children were considered to represent the high-risk group for development of a clinical significant depressive disorder later and needed to be identified early.

6.4.2 Age and Developmental stage-related depressive symptoms

How do developmental stage and age affect the expression of depressive symptoms in primary school children?

This second part of the clinical interview instrument can be summarised as follows:

	Developmental stage- and age-related depressive symptoms	Percentage of respondents	Number of respondents
1	Fear of school	6.7	11
2	Mood-congruent auditory hallucinations	10.3	17
3	Suicidal talk	12.1	20
4	Feeling persecuted	15.8	26
5	Feelings of guilt and obsessions	16.4	27
6	Suspiciousness	18.2	30
7	Feelings of worthlessness	20.0	33
8	Poor self-esteem	22.4	37
9	Withdrawn	23.6	39
10	Feeling unloved	24.2	40
11	Sad appearance	30.9	51
12	Feeling lonely	37	61
13	Somatic complaints	49.1	81
14	Unhappy	50.9	84
15	Worrying	52.1	86

Symptoms of worrying, feeling unhappy and somatic complaints were highly presented in this sample.

6.4.3 Modified diagnostic algorithm

Referring to the development of a diagnostic checklist that could distinguish between depressive symptoms and syndromes, the following applied:

A known diagnostic checklist that consists of 13 items for diagnosis of depressive disorders of varying severity in children, was matched with corresponding items on the researchers DSM-IV diagnostic interview and developmental stage- and age-related symptoms (Kolvin et al, 1992 : 1).

	Known Diagnostic Algorithm	Modified Diagnostic Algorithm	Matches with DSM-IV diagnostic interview
1	Dysphoric mood	Depressed/irritable mood	D22 or D23
2	Anhedonia	Marked loss of pleasure in doing activities	D7
3	Feeling unloved	Feeling unloved	D50
4	Weeping	Being easily moved to tears	D18
5	Loss of energy	Decrease in energy	D13
6	Loss of interest	Loss of interest in activities	D6
7	Loss of appetite	Weight loss or gain	D9
8	Lack of concentration	Diminished ability to concentrate	D15
9	Sense of emptiness	Feeling empty	D3
10	Suicidal ideation	Suicidal talk	D60
11	Depersonalisation	Feelings of worthlessness	D14
12	Sense of hopelessness	Feelings of hopelessness	D16
13	Depressive thoughts	Feelings of sadness, down in the dumps	D4

Comparing the diagnosis 0,1,2 with the cut-off score of 5 on the modified diagnostic algorithm, the following was found:

- Of children who had no diagnosis according to the DSM-IV-PLUS diagnostic criteria, 69% also had a 0 score out of the 13 (no diagnosis) on the Modified diagnostic algorithm.
- At a score of 5 out of 13 (moderate diagnosis) on the modified diagnostic algorithm, 23% of children had a diagnosis 1 (mild depressive disorder) according to DSM-IV-PLUS diagnostic criteria and 7% had a diagnosis 2 (moderate depressive disorder).
- The modified diagnostic algorithm can distinguish between depressed and non-depressed children, but the distinction between mild and moderate depressed groups is not clear. The diagnostic algorithm does not take functional impairment into account.

6.5 Body mass index

Of the 201 (100%) children only 165 (82%) were weighed, had their heights taken and had their body mass indices calculated. The difference was calculated between the height percentile and the weight percentile after grouping the length and weight percentile in different classes. No significant statistical relationship could be found between children suffering from no depressive disorders and children suffering from depressive disorders (diagnosis 1 and 2) when assessing body mass or subtracting weight centile from height centile.

6.6 Actual academic performance

The sample consisted of 165 children (100%) who completed the doctor's screening instruments and the clinical interview.

Average academic term performances were compared between the different terms by subtracting the marks between the terms.

Of the 165 children (100%), only 19 children (12%) had no actual school marks. This group of children were in grade 7 in Kwaggasrand Primary School. Owing to a miscommunication, grade 7 average school marks were sent to the Head Office of the Education Department without letting the researcher know. Unfortunately, the marks could not be retrieved, despite repeated attempts.

6.6.1 Comparing the decline in average academic school achievement between terms

Term 3 marks were subtracted from Term 1 marks and Term 2 marks from Term 1 marks, and the differences were then grouped in different classes, with the following response:

Negative differences implied improvement in marks (32%) from the first term to the third term.

Positive differences between term 3 and term 1 implied a drop in marks (32%).

Three groups were identified according to the differences between terms of the average school marks:

Average marks: Differences	Difference in marks Term 1 - Term 3		Difference in marks Term 1 - Term 2	
	Number of Children	% of Responders	Number of Children	% of Responders
Negative (marks improved)	23	31.51	46	15.75
No change	13	5.48	8	8.90
Positive (marks dropped)	110	63.01	92	75.34

A drop in average school marks was more prevalent between term one and term two than between term one and term three.

6.7 In conclusion

DSRS responses according to DSRS scores (0,1,2 diagnostic categories) reflect a 45% no diagnosis, with a 30% moderate diagnosis, and 24% with a mild diagnosis.

Drop in average school marks (comparing teacher with doctor) shows that both could identify a drop in average marks, but that the teachers reported a higher drop in average school marks. This can be explained by the teacher's role in the classroom.

High ratings on most of the items of the modified behaviour checklist show that the teachers were successful in picking up comorbidity symptoms.

Of the essential symptoms for depression on the DSM-IV, 50% reported a change in mood to irritability and 48% admitted to a depressed mood.

Three diagnostic groups have been identified to represent no diagnosis, mild depressive disorder and moderate depressive disorder.

Inferential statistics follow in Chapter 7.

7 Presentation of inferential results

In the previous chapter the results of the descriptive analysis were presented. No inferences could be made at that stage.

The aims of the research project were as follows:

- To improve early identification of depressive disorders in childhood (Phase I)
- To improve accurate diagnosis of depressive disorders in childhood (Phase II)
- To develop a schedule depicting stepwise strategies for appropriate assessment of depressive disorders based on different levels of care to improve mental health services for young people.

Phase I: To improve early identification

Several different screening instruments are to be assessed with a view to selecting the most appropriate screening instrument to be used as a tool for the identification of depressive disorders in diagnostic groups.

Phase II: To improve accurate diagnosis

The relationship between the components of DSM-IV-PLUS diagnostic criteria and age and developmental stage criteria for depressive disorders is assessed. Certain developmental symptoms (for children of a specific age group) might guide the clinician in the use of the DSM-IV criteria.

The specific objectives in this study were the following:

To improve early identification (Phase I) by the following:

- Comparing different teacher-screening instruments
- Evaluating the sensitivity and observation skills of the teacher
- Noting the actual decline in academic achievement (marks)
- Plotting height and weight according to body mass index and growth charts to detect failure in making expected weight gains.

To improve accurate diagnosis (Phase II) by the following:

- Evaluating the present DSM-IV-PLUS criteria for depressive disorders during the clinical interview
- Evaluating the sensitivity of developmental-stage symptoms for depressive disorders
- Evaluating the sensitivity of the modified diagnostic algorithm for diagnosing depressive disorders.

Not all, but only significant results are presented.

7.1 Phase I

7.1.1 Relationship between DSRS categories and diagnostic groups

7.1.1.1 Chi-Square test of DSRS diagnostic categories by diagnostic groups

(Percentage in brackets per DSRS category p<0.0000)

DSRS diagnostic categories N = 165	Diagnostic group = 0 No diagnosis	Diagnostic group = 1 Mild depressive diagnosis	Diagnostic group = 2 Moderate depressive diagnosis	Total
DSRS = 0	Number of children	Number of children	Number of children	
N = 75	33 (44.0)	31 (41.30)	11 (14.70)	75 (100)
DSRS = 1	7 (17.50)	25 (62.50)	8 (20.0)	40 (100)
N = 40				
DSRS = 2	5 (10.0)	31 (62.0)	14 (28.0)	50 (100)
N = 50				

- Thirty-three children with no diagnosis according to diagnostic group 0, had no diagnosis on DSRS.
- Thirty-one children with mild diagnosis (diagnostic group 1), had a moderate depressive disorder according to DSRS 2.

7.1.1.2 Loglinear analysis investigating the interaction between DSRS diagnostic categories and diagnostic groups

p = 0.0004 (Standardised estimated loglinear parameters in brackets)

Diagnosis	DSRS			
	Diagnostic categories = 0 Very low score	Diagnostic categories = 1 Mild score	Diagnostic categories = 2 Moderate score	Total
No 0	33 (4.024)	7 (-0.569)	5 (-2.531)	45
Mild 1	31 (-2.224)	25 (0.785)	31 (1.206)	87
Moderate 2	11 (-2.027)	8 (-0.034)	14 (1.981)	33
Grand Total	75	40	50	165

There is a significant interaction between No diagnosis on the DSRS and the No diagnostic group, e.g., 33 children who had no *depression* according to the DSRS score, also had no diagnosis of a depressive disorder according to the groups. The same, however, cannot be said of the children with more severe syndromes.

The significant results for both the Chi-Square test (Refer to 7.1.1.1.) and the loglinear analysis above, nevertheless, indicate a significant relationship between DSRS diagnostic categories and the chosen diagnostic groups.

7.1.2 Screening instrument: Relationship between a drop in school marks and diagnostic groups

7.1.2.1 Contingency table of doctor's assessment of decline in school marks by diagnostic groups

(Percentage in brackets per decline category)

Decline in school marks N = 165	Diagnostic groups = 0 No diagnosis	Diagnostic groups = 1 Mild depressive diagnosis	Diagnostic groups = 2 Moderate depressive diagnosis	Total (100)
School mark = 1 No drop N = 80	Number of children 42 (51.5)	Number of children 32 (41.0)	Number of children 6 (7.5)	(100)
School mark = 2 (5-10% drop) N = 59	3 (5.1)	39 (66.1)	17 (28.8)	(100)
School mark = 3 (11-20% drop) N = 16	0 (0)	9 (56.3)	7 (43.7)	(100)
School mark = 4 (21-30% drop) N = 5	0 (0)	4 (80)	1 (20)	(100)
School mark = 5 (31-40% drop) N = 5	0 (0)	3 (60)	2 (40)	(100)

Of children with no diagnosis, 51.5% had no decline in school marks. Of the children diagnosed with a mild depression, 66.1% had a 5-10% drop in school marks. There can be said to be a significant relationship between the doctor's assessment of a decline in school marks to diagnostic groups of items from the screening instrument.

Chi-square tests on other items are unreliable because low frequencies in the screening instrument did not yield significant results.

The Chi-Square test is, therefore, not applicable.

7.1.2.2 Results of loglinear analysis investigating the interaction between doctor's assessment of drop in school marks and the diagnostic groups

P = 0.0000 (Standardised estimated loglinear parameters in brackets)

Diagnoses	Doctor's assessment of drop in school marks			
	Drop in school marks			Total
	No drop	5 - 10% drop	11 - 20 % drop	
No 0	42 (4.454)	3 (-1.117)	0 (-1.772)	45
Mild 1	32 (-2.141)	39 (0.649)	13 (0.911)	84
Moderate = 2	6 (-4.224)	17 (1.168)	8 (2.203)	31
Grand Total	80	59	21	160

There is a significant positive association between no diagnosis and no drop in school marks. As assessed by the doctor, 42 children had no drop in average and had no diagnosis either.

A moderate depressive diagnosis is not associated with a 5 - 10% drop in school marks, but there is a tendency to be associated with an 11 - 20% drop in school marks.

There is no significant association between moderately depressed school children and no decline in school marks. This is expected as the child with normal school marks should not be suffering from a depressive disorder.

There is a positive interaction between a drop in school marks as assessed by the doctor and a severe depressive disorder according to the diagnostic group.

A drop in school marks is a sensitive predictor of depressive disorders.

7.1.2.3 Results of loglinear analysis investigating the interaction between teacher's assessment of drop in school marks and the diagnostic groups

(p = 0.0000) (Standardised estimated loglinear parameters in brackets)

Diagnosis N = 165	Teacher's assessment of drop in school marks			
	Drop in school marks			Total
NO = 0	No drop	5 - 10% drop	11 - 20 % drop	45
Mild = 1	41 (-1.175)	26(-0.570)	20 (1.305)	87
Moderate = 2	7 (-4.384)	16 (1.781)	10 (2.275)	33
Grand Total	87	47	31	165

There is a positive interaction between drop in school marks as assessed by the teacher and a severe depressive disorder according to the diagnostic group.

Moderate depressive disorder (2) is not associated with school marks that remain the same, but there is a positive tendency that moderate depressive disorder (2) is associated with a severe drop (11 - 30%) in school marks.

No drop in school marks is significantly associated with no depressive diagnosis.

7.1.3 Screening instrument: relationship between results of doctor and teacher

7.1.3.1 Spearman Correlation Analysis between the different variables: Comparing doctor and teacher screening instrument

		Teacher's screening instrument								
		Tfunct	TF1	Tcheck	Tstress	TOD	TCD	TADHD	TANX	Tdep
Doctor's screening instrument	Dfunct	B **0.60 High**	B **0.60 High**	B **0.45 Med**	B **0.45 Med**	0.27 Mild	0.11 Mild	B **0.46 Med**	B **0.30 Med**	B **0.52 High**
	DF1	B **0.52 High**	B **0.65 High**	B **0.32 Med**	0.27 Mild	0.21 Mild	0.16 Mild	B **0.32 Med**	0.21 Mild	0.22 Mild
	Dcheck	B **0.34 Med**	B **0.36 Med**	B **0.30 Med**	B **0.31 Med**	0.18 Mild	0.10 Mild	0.25 Mild	0.23 Mild	B **0.29 Mild**
	Dstress	B **0.31 Med**	0.27 Mild	0.26 Mild	B **0.56 High**	0.16 Mild	0.06 Mild	0.20 Mild	0.18 Mild	B **0.29 Mild**
	DOD	0.22 Mild	0.23 Mild	0.27 Mild	0.20 Mild	0.23 Mild	0.08 Mild	0.56 High	0.11 Mild	0.26 Mild
	DCD	0.21 Mild	0.21 Mild	0.25 Mild	0.12 Mild	0.29 Mild	0.27 Mild	0.22 Mild	0.05 Med	0.15 Mild
	DADHD	0.24 Mild	0.23 Mild	0.23 Mild	0.16 Mild	0.15 Mild	0.10 Mild	0.23 Mild	0.10 Mild	0.20 Mild
	DANX	0.35 Mild	0.22 Mild	0.17 Mild	0.24 Mild	0.04 Mild	0.02 Mild	0.09 Mild	0.24 Mild	0.17 Mild
	Ddep	0.26 Mild	B **0.30 Med**	0.17 Mild	B **0.31 Med**	0.03 Mild	0.20 Mild	0.12 Mild	0.20 Mild	0.22 Mild

Funct:	Assessment of school functioning
F1 :	Drop in average marks
Check:	Modified behaviour checklist
Stress:	Psychosocial stressors
OD:	Oppositional defiant disorder
CD:	Conduct Disorder
ADHD:	Attention deficit hyperactivity disorder
Anx:	Anxiety disorder
Dep:	Depressive disorder

> 0.7 :	Very High (VH)
0.50 - 0.69 :	High
0.30 - 0.49 :	Medium (Med)
< 0.29 :	Mild

Significant p-values presented by "B" and boldly printed correlation coefficients. ($p < 0.0001$)

Significant p-values are presented by bold correlation coefficients. (See legend underneath preceding table.)

High correlation and significant p-values between doctor's and teacher's assessment of school functioning and drop in school marks were demonstrated

7.1.3.2 Results of Wilcoxon Signed Rank Test for comparing Doctor versus Teacher evaluations on screening instrument

(N = 165)

Variable	Doctor Mean	Teacher Mean	P-Value
Decline in school marks	1.76	1.68	0.3484
Decline in school functioning	1.64	1.96	0.0001
Psychosocial stressor	1.92	1.34	0.0001
Oppositional defiant disorder	1.57	1.56	0.8724
Conduct disorder	0.31	0.23	0.2243
Attention deficit hyperactivity disorder	2.02	1.75	0.0377
Depressive disorder	2.23	1.18	0.0001
Anxiety disorder	2.33	1.15	0.0001
Modified behaviour checklist	8.48	5.85	0.0001

The results of Wilcoxin Signed Rank Test comparing doctor's versus teacher's assessment for school functioning showed the teacher gave a more sensitive rating (significant difference).

Both doctor and teacher gave a reasonably accurate description of decline in school marks (no significant difference).

The identification of depressive and anxiety symptoms showed a significant difference between doctors and teachers. Despite the awareness training that teachers received on depressive disorders, they were still less sensitive than the doctor to the presence of emotional problems in the children.

Teachers were also significantly less sensitive than the doctor in identifying psychosocial stressors as well as items on the modified behaviour checklist.

7.1.3.3 Results of Kruskal-Wallis one-way ANOVA comparing doctor and teacher evaluations on the screening instrument between diagnostic groups

Common characters (a, b and c) are not significantly different (multiple comparisons based on Kruskal-Wallis scores) .

Variables	No diagnosis: 0		Mild diagnosis: 1		Moderate diagnosis: 2		P-value
	Mean	Standard Deviation	Mean	Standard deviation	Mean	Standard Deviation	
DF1	1.07 a	0.25	1.93 cb	0.99	2.27 c	1.01	0.0000
TF1	1.16 a	0.42	1.80 b	0.88	2.12 b	0.78	0.0000
Dfunct	1.15 a	0.22	1.70 b	0.41	2.14 c	0.64	0.0000
Tfunct	1.39 a	0.41	2.2 b	0.81	2.15 b	0.66	0.0000
Dstress	0.78 a	1.12	1.93 b	1.77	3.55 c	1.84	0.0000
Dcheck	3.25 a	2.85	9.10 b	4.44	14.00 c	4.33	0.0000
Diff 1-2	1.02 a	4.29	5.93 b	8.71	9.31 b	3.97	0.0000
Diff 1-3	-1.17 a	4.07	4.36 b	9.67	6.38 b	6.70	0.0000

See the list of abbreviations at the beginning of this thesis.

Funct: Assessment of school functioning

F1 : Drop in average marks

Check: Modified behaviour Checklist

Stress: Psychosocial stressors

Diff 1-2 Drop in school marks between terms 1 & 2

Diff 1 -3 Drop in school marks between terms 1 & 3

($p \leq 0.05$ is significant)

Each of the variables represents the sum total of numbers of symptoms.

From the above table, we may conclude that as far as a drop in marks is concerned, whereas the teachers (TF1) could distinguish between the non-depressed and depressed children, the doctors (DF1) could even distinguish between the mild and moderate depressive groups. There was a difference in the

mean of the doctor's assessment of school functioning (Dfunct) between the different diagnostic groups. (See Dfunct a, b, c.) There was no difference in the mean of the assessment of school functioning of the teachers between the different depressive groups. (See Tfunct a, b, b.) Dstress can differentiate significantly between non-depressed and depressed groups, as well as between mild and moderate diagnostic groups for depressive disorder.

The doctor's identification of psychosocial stressors (Dstress) becomes a poor predictor of depressive disorders if used in combination with other parameters in this research study (Refer to 7.2.4.5, 7.2.4.6.)

A drop in actual marks could not distinguish between the mild and moderate depressive groups, but could distinguish between depressed and non-depressed groups.

The Kruskal-Wallis test for the effect of the following variables, i.e., oppositional defiant disorder, conduct disorder, attention deficit hyperactivity disorder was not significant.

7.2 Phase II

7.2.1 Results of Wilcoxon signed rank test for doctors' ratings according to racial subgrouping

Variable	Doctor mean		P value
	European	Non-European	
Diagnosis	0.92	0.94	0.8168
Stressors	17.09	18.08	0.8339
Functional scale	1.65	1.61	0.9550
Checklist	59.93	62.90	0.0343
DSRS	10.19	10.58	0.4154
Developmental symptoms	4.12	3.40	0.2385

N = 165 ($p \leq 0.05$ is significant)

The following results were obtained:

The doctor's rating of the behaviour checklist is significantly different between European and Non-European children: p = 0.0343. No other differences were found between the two groups. Teachers' ratings followed the same pattern as the above. Clearly there were no differences between the two different race groups with respect to severity of depressive disorders, number of stressors and impairment in functioning, DSRS, and developmental symptoms.

7.2.2 Relationship between developmental stage- and age-related symptoms and diagnostic groups

7.2.2.1 Chi-Square test for individual symptoms of developmental stage- and age-related symptoms for depressive disorders by diagnostic groups

($p < 0.0001$) (Percentage in brackets per diagnostic group)

Individual DSM-IV-PLUS symptoms N = 165	Diagnostic group = 0 No diagnosis Number of children who experienced symptoms	Diagnostic group = 1 Mild depression Number of children who experienced symptoms	Diagnostic group = 2 Moderate depression Number of children who experienced symptoms	Total (165)
Worry	36 (80)	38 (43.7)	9 (27)	83
	9 (20)	49 (56)	24 (73)	82
Feeling anxious	45 (100)	29 (33.3)	8 (24)	82
	0 (0)	59 (68)	25 (76)	83
TOTAL N = 165	45	87	33	

Both the symptoms *worry* and *feeling anxious* yielded significant test results. More than 15% of the mild depressive group and moderate depressive group presented with the symptoms of worry and feeling anxious. From the children with mild depression (group 1) 56% suffered from the symptoms worry, and 68% suffered from the symptom feeling anxious. Moreover, in diagnostic group 2, 73% of children suffered from the symptom *worry* and 76% of children suffered from the symptom *feeling anxious*.

Both these symptoms commonly occurred in children with depressive disorders.

7.2.2.2 Results of loglinear analysis investigating the interaction between worry (as additional symptom) and the diagnostic groups

There is a significant interaction between *worry* and diagnostic groups. p = 0.0000 (Standardised estimated loglinear parameters in brackets).

Diagnosis	Worry		
	No 0	Yes 1	Total
No 0	36 (4.576)	9 (-4.576)	45
Mild 1	38 (-1.324)	49 (1.324)	87
Moderate 2	9 (-3.422)	24 (3.422)	33
Grand Total	83	82	N =165

36 children who had no diagnosis of depression also had no symptoms of worry, while 24 children who had a moderate depression (2) also suffered from the symptom worry.

There is a positive interaction between the moderate depressive diagnosis and the symptom worry.

7.2.2.3 Results of loglinear analysis investigating the interaction between feeling anxious and diagnostic groups

P = 0.0000 (Standardised estimated loglinear parameters in brackets)

Diagnosis	Feeling anxious		
	No 0	Yes 1	Total
No 0	45 (3.751)	0 (-3.751)	45
Mild 1	29 (-3.098)	58 (3.098)	87
Moderate 2	8 (-3.665)	25 (3.665)	33
Grand Total	82	83	165

Forty-five children had no diagnosis and no symptom of feeling anxious.
Twenty-five children who had a moderate diagnosis of depressive disorder also had the symptom of feeling anxious.

Conclusion: The moderately depressed children according to the diagnostic group 2 presented with the symptom *feeling anxious*, and there is a significant interaction between a depressive diagnosis and feeling anxious.

7.2.2.4 Chi-Square test of developmental stage symptoms for depressive disorder by diagnostic group

(Percentage in brackets per symptom response) (P <0.0001)

Developmental symptoms N = 165	Diagnostic group = 0 No diagnosis		Diagnostic group = 1 Mild	Diagnostic group = 2 Moderate	Total (100)
Feeling unloved	No n = 125	**42** (33.6)	**68** (54.4)	**15** (12)	100
	Yes n = 40	**3** (7.5)	**19** (47.5)	**18** (45)	100
Unhappy	No n = 81	**39** (48.1)	**34** (42)	**8** (9.9)	100
	Yes n = 84	**6** (7.1)	**53** (63.1)	**25** (29.8)	100
Sad appearance	No n = 114	**43** (37.8)	**58** (50.91)	**13** (11.4)	100
	Yes n =51	**2** (3.9)	**29** (56.9)	**20** (39.22)	100
Withdrawn	No n =126	**43** (34.1)	**66** (52.4)	**17** (13.5)	100
	Yes n = 39	**2** (5.1)	**21** (53.9)	**16** (41.0)	100
Feelings of worthlessness	No n = 132	**44** (33.3)	**71** (53.8)	**17** (12.9)	100
	Yes n = 33	**1** (3.03)	**16** (48.5)	**16** (48.5)	100
Poor self-esteem	No n = 128	**43** (33.6)	**67** (52.3)	**18** (14.06)	100
	Yes n = 37	**2** (5.4)	**20** (54.1)	**15** (40.54)	100
Feeling lonely	No n = 104	**42** (40.4)	**51** (49.0)	**11** (10.6)	100
	Yes n = 61	**3** (4.9)	**36** (59.0)	**22** (36.1)	100
Worrying	No n = 79	**35** (44.3)	**37** (46.8)	**7** (8.9)	100
	Yes n = 86	**10** (11.6)	**50** (58.1)	**26** (30.2)	100
Somatic complaints	No n = 84	**41** (48.8)	**31** (36.9)	**12** (14.3)	100
	Yes n = 81	**4** (4.94)	**56** (69.1)	**21** (25.9)	100

From the above, the following symptoms of the developmental stage symptoms for depressive disorders were significantly dependent on the diagnostic groups.

These included feeling unloved, being unhappy, appearing sad, being withdrawn, feeling worthless, having poor self-esteem, feeling lonely, worrying and having somatic complaints.

7.2.2.5 Results of the Loglinear analysis of interaction between feeling unloved (developmental stage-related symptom) and the diagnostic groups

There is a highly significant interaction between the diagnostic group (0, 2) and feeling unloved.

p = 0.0000 (Standardised estimated loglinear parameters in brackets)

Diagnosis	Feeling unloved		
	No 0	Yes 1	Total
No 0	42 (3.283)	3 (-3.283)	45
Mild 1	68 (0.232)	19 (-0.232)	87
Moderate 2	15 (-4.456)	18 (4.456)	33
Grand Total	125	40	165

There is a significant interaction between the 42 children who had no diagnosis but also had no symptom of feeling unloved.

When the 18 children were moderately depressed, we can be sure that they felt unloved.

In conclusion: There is a significant interaction between feeling unloved and the diagnostic group moderate depression.

7.2.2.6 Results of the Loglinear analysis of interaction between sad appearance (developmental stage-related symptom) and the diagnostic groups

There is a significant interaction between the diagnostic group (0, 2) and the developmental symptom *sad appearance*.

p = 0.0000 (Standardised estimated loglinear parameters in brackets)

Diagnosis	Sad appearance		
	No 0	Yes 1	Total
No 0	43 (3.987)	2 (-3.987)	45
Mild 1	58 (-1.235)	29 (1.235)	87
Moderate 2	13 (-4.454)	20 (4.454)	33
Grand Total	114	51	165

There is a significant interaction between diagnosis 0 and absence of sad appearance as a developmental symptom.

There is a significant interaction between the presence of a sad appearance and a moderate depressive disorder.

Children diagnosed with a moderate depressive disorder according to diagnostic group 2 do present with sad appearance.

7.2.2.7 Results of the Loglinear analysis of interaction between feeling lonely (developmental stage-related symptom) and the diagnostic groups

p = 0.0000 (Standardised estimated loglinear parameters in brackets)

Diagnosis	Feeling lonely		
	No 0	Yes 1	Total
No 0	42 (4.472)	3 (-4.472)	45
Mild 1	51 (-1.435)	36 (1.435)	87
Moderate 2	11 (-4.455)	22 (4.455)	33
Grand Total	104	61	165

Forty-two children were not feeling lonely and had no diagnosis of depression.

The twenty-two children who were feeling lonely had a moderate depressive diagnosis

There is a significant interaction between the moderately depressed diagnostic group and feeling lonely.

7.2.2.8 Results of the Loglinear analysis of interaction between somatic complaints (developmental stage-related symptom) and the diagnostic groups

There is a significant interaction between the diagnostic group 0, 2 and somatic complaints

p = 0.0000 (Standardised estimated loglinear parameters in brackets)

Diagnosis	Somatic complaints		
	No 0	Yes 1	Total
No 0	41 (5.169)	4 (-5.169)	45
Mild 1	31 (-3.770)	56 (3.770)	87
Moderate 2	12 (-3.040)	21 (3.040)	33
Grand Total	84	81	165

There is an association between no diagnosis 0 (no diagnosis) and the absence of somatic complaints.

There is a positive interaction between moderately depressed children according to diagnostic groups and somatic complaints.

7.2.2.9 Results of the Loglinear analysis of interaction between worry (developmental stage-related symptom) and the diagnostic groups

There is a significant interaction between the diagnostic group (0,2) and worry.

p = 0.000 (Standardised estimated loglinear parameters in brackets)

Diagnosis	Worry		
	No 0	Yes 1	Total
No 0	35 (4.739)	10 (-4.739)	45
Mild 1	37 (-0.795)	50 (-0.795)	87
Moderate 2	7 (-3.728)	26 (3.728)	33
Grand Total	79	86	165

There is an association between diagnosis 0 and absence of the symptom worry:

Thirty-five children who had no diagnosis had also no symptom of worry.

Thirty-three children who were suffering from a moderate depressive disorder also had a symptom of worry.

The symptom *worry* shows a positive interaction with children suffering from a moderate depressive disorder according to diagnostic group 2.

7.2.3 Relationship between modified diagnostic algorithm and diagnostic groups: Result of loglinear analysis

p = 0.0000 (Standardised estimated loglinear parameters in brackets)

Diagnosis	Modified Diagnostic Algorithm		
	No 0	Yes 1	Total
No 0	44 (5.626)	1 (-5.626)	45
Mild 1	22 (-1.923)	65 (1.923)	87
Moderate 2	1 (-4.504)	32 (4.504)	33
Grand Total	67	98	N =165

There is a significant interaction between the diagnostic algorithm score 0 and diagnostic group 0, and between a moderate diagnosis (2) and diagnostic algorithm, with a high score (> 5/13) (moderate depressive disorder), i.e.

Forty-four children who had no diagnosis also had no score on the diagnostic algorithm.

Thirty-two children who had a moderate depression (diagnostic group 2) had a depressive score of > 5/13 on the diagnostic algorithm.

There is a significant interaction between the moderately depressed diagnostic group and the score of more than 5 out of 13 on the Diagnostic Algorithm. The Modified diagnostic algorithm identified the moderately depressed child but could not identify the mild depressed child, as this interaction is not significant.

7.2.4 Relationships among subparts of doctor's clinical interview

7.2.4.1 Results of Spearman correlation matrix of the different variables: comparing doctor's modified DSM-IV and developmental variables

Doctors clinical interview: variables		Essent	Addit	Effunct	Diagnosis	Develop
	Essent	1.00	**0.78 VH**	**0.80 VH**	**0.8 High**	**0.73 VH**
	Addit	**0.78 VH**	1.00	**0.73 VH**	**0.76 High**	**0.84 VH**
	Effunct	**0.80 VH**	**0.73 VH**	1.00	**0.77 VH**	**0.70 VH**
	Diagnosis	**0.80 VH**	**0.76 Vh**	**0.77 VH**	1.00	**0.67 High**
	Develop	**0.73 VH**	**0.84 VH**	**0.70 VH**	**0.67 High**	1.00

Essent:	Essential symptoms of depressive disorders according to DSM-IV	> 0.7 :	Very High (VH)
Adit :	Additional symptoms of depressive disorders according to DSM-IV	0.50 - 0.69	High
Efunct:	Effect on functioning	0.30 - 0.49	Medium (Med)
Diagnosis	One of the depressive disorders	< 0.29 :	Mild
Develop:	Developmental symptoms for depressive disorders		
ADHD:	Attention deficit hyperactivity disorder		
Anx:	Anxiety disorder		
Dep:	Depressive disorder		

*Significant p-values presented by bold printed correlation coefficients

*The Spearman correlation analysis demonstrated a very high correlation and significant p-values between developmental criteria and essential criteria, as well as between essential criteria and effect on functioning.

A positive correlation exists between essential symptoms of DSM-IV-PLUS, additional symptoms of DSM-IV-PLUS and developmental symptoms for depressive disorder.

7.2.4.2 Results of Kruskal-Wallis one-way ANOVA comparing diagnostic groups

DIAGNOSTIC GROUPS

Variables	No diagnoses: 0		Mild diagnoses: 1		Moderate diagnosis: 2		P-value
	Mean	Standard Deviation	Mean	Standard deviation	Mean	Standard Deviation	
Additional	0.89 a	1.15	4.51 b	1.94	6.72 c	2.13	0.0000
Developmental	0.87 a	1.32	4.40 b	2.31	6.70 c	2.87	0.0000
Essential	0.09 a	1.32	4.40 b	2.31	6.70 c	2.87	0.0000

* Means with common characters are not significantly different. (multiple comparisons based on Kruskal-Wallis scores)

From the above table, we may conclude that essential symptoms, additional symptoms of DSM-IV-PLUS criteria, as well as age and developmental symptoms could distinguish between depressed and non-depressed children, as well as distinguish between the mild and moderate depressive groups.

7.2.4.3 Results of Spearman correlation matrix of doctor's screening variables and clinical interview variables

	Essent	AddIt	Effunct	Diagnosis	Develop
Dfunct	B **0.60 High**	B **0.60 High**	B **0.65 High**	B **0.66 High**	B **0.54 High**
DF1	B **0.40 Med**	B **0.42 Med**	B **0.55 High**	B **0.53 High**	B **0.31 Med**
Dcheck	B **0.64 High**	B **0.76 VH**	B **0.63 High**	B **0.70 High**	B **0.73 VH**
Dstress	B **0.47 Med**	B **0.47 Med**	B **0.38 Med**	B **0.52 High**	B **0.40 Med**
DOD	B **0.41 Med**	B **0.47 Med**	B **0.41 Med**	0.22 Mild	B **0.43 Med**
DCD	0.17 Mild	0.20 Mild	0.20 Mild	0.08 Mild	0.21 Mild
DADHD	B **0.45 Med**	B **0.57 High**	B **0.44 Med**	0.19 Med	B **0.50 High**
DANX	B **0.43 Med**	B **0.54 High**	B **0.40 Med**	0.24 Mild	B **0.57 High**
DDEP	B **0.63 High**	B **0.69 High**	B **0.63 High**	B **0.35 Med**	B **0.67 High**

Correlation coefficients:

>0.70 :VH (Very high)

0.50 - 0.69 :High

0.30 - 0.49 :Med (medium)

0.00 - 0.29 :Mild

Significant p-values presented by bold printed correlation coefficients and "B".

The doctor's assessment of school functioning had a high correlation and significant p-values with the clinical interview variables, e.g., essential symptoms, additional symptoms, and effect on functioning, diagnosis and developmental stage criteria for depressive disorders.

Both doctors' screening assessments of depressive and anxiety symptoms had a high correlation and significant p-value with additional symptoms of the DSM-IV diagnostic criteria, as well as the developmental stage criteria for depressive disorders.

7.2.4.4 Stepwise logistic regression: To identify the individual contributions to the diagnosis of depressive disorders by the following:

- Essential symptoms
- Additional symptoms
- Developmental symptoms respectively.

Summary of stepwise selection:

Essential symptoms	Additional Symptoms		Developmental Symptoms	
D3	D9	D16	D50	*D58
D4	D10	D17	D51	D59
D5	D11	D18	D52	D60
D6	D12	D19	D53	D61
D7	D13	*D20	D54	D62
D8	D14	D21	D55	D63
	D15		D56	D64
			D57	

(Duplication of symptoms prevented by omitting *D20, *D58)

See Appendix F for description of individual symptoms.

All essential symptoms apart from D6, contributed significantly to the diagnoses of depressive disorder.

The group of essential symptoms (apart from D6) explained 79% in the variance. Additional symptoms that contributed significantly to the diagnosis of depressive disorders explained 70% in the variance.

The contribution of the developmental symptoms is not as important as those of the essential and additional symptoms. The developmental symptoms explained 57% of the variance.

The importance of the contribution of the developmental symptoms to the diagnosis of depressive disorder will be discussed in chapter 8.

7.2.4.5 Results of logistic regression: stepwise selection procedure to identify the smallest number of factors to "best" predict the diagnosis of depressive disorders

Predictor list:

Tfunct	Dfunct
Tstress	Dstress
TF1	DF1
Tcheck	Dcheck
BMI	Develop
Essent	Addit
DSRS	

From the above test it would seem that the "best" predictors of depressive diagnosis are
Dcheck, Essent, TF1, and Tfunct.

The doctor's completion of the modified behaviour checklist, the essential symptoms (*feeling anxious* included) of DSM-IV diagnostic criteria and the teacher's assessment of a drop in school marks and functioning, best predict diagnosis of depressive disorders. The remainder of the predictors are not significant, e.g., BMI, (Body Mass Index), Dstress (Doctor's identification of psychosocial stressors) and Tstress (teacher's identification of psychosocial stressors).

7.2.4.6 Results of logistic regression: full model, using all the parameters in the research study to identify the most significant variables when all are considered simultaneously

Predictor list:

(Results of loglinear regression model)

Tfunct	Dfunct
Tstress	Dstress
TF1	DF1
Tcheck	Dcheck
BMI	Develop
Essent	Addit
Diff 1 - 2	Diff 1 - 3

The most significant interaction of diagnostic groups with the following predictors identified: Essential symptoms of DSM-IV-PLUS (essent) with the symptom *feeling anxious* added, the teacher's assessment of a drop in school functioning (Tfunct), and doctor's completion of modified behaviour checklist, (Dcheck) and the drop in term marks (Diff 1-2).

Identification of psychosocial stressors by the doctor (Dstress) and by teacher, (Tstress) and the rest of the predictor list were not found to be significant in this model. Dstress on its own, according to Kruskal-Wallis One Way ANOVA, is significant, but when considered simultaneously with all parameters, Dstress becomes insignificant.

Conclusion:

From the above is seems that Dcheck is quite significant and reliable for predicting and differentiating between diagnostic groups. A drop in actual school marks, term 1 - 2 is quite significant in predicting depressive diagnosis, as are the teacher's assessment of school functioning and the essential symptoms of DSM-IV-PLUS diagnostic criteria.

7.2.4.7 Spearman correlation analysis between symptom counts on the different instruments:

Depressive symptom count, behaviour checklist count, stressor count, and diagnostic groups.

Significant p-values (p< 0.0001) presented by boldly printed correlation coefficients and "B":

	Diag	Dcheck	Dstress	Dfunct	Dsympt
Diag	1.00	B **0.70** Very high	B **0.52** High	B **0.66** High	B **0.78** Very high
Dcheck	B **0.70** Very high	1.00	B **0.54** High	B **0.61** High	B **0.74** Very high
Dstress	B **0.52** High	B **0.54** High	1.00	B **0.51** High	B **0.47** Medium
Dfunct	B **0.666** High	B **0.61** High	B **0.51** High	1.00	B **0.59** High

> 0.7 :	Very High (VH)
0.50 - 0.69	High
0.30 - 0.49	Medium (Med)
< 0.29 :	Mild

All the correlations are significant, ($p < 0.0001$). There is a positive correlation between the number of depressive symptoms identified by the doctor; the degree of impairment on the functional scale; and number of symptoms identified according to the behaviour checklist; as well as the diagnostic groups.

7.3 In conclusion

After the analysis of phase I data, significant interactions are demonstrated between the diagnostic groups on the one hand and the DSRS and drop in school marks and developmental symptoms on the other. Both teacher's and doctor's assessment of school functioning and drop in school marks are significant.

After the analysis of Phase II date, significant interactions are demonstrated between diagnostic groups on the one hand, and essential features, additional features, developmental stage- and age-related symptoms, modified diagnostic algorithm, and the doctor's screening variables on the other.

The contribution of the developmental stage symptoms was less than anticipated and will be discussed in Chapter 8.

The importance of the correlation between the symptom count (described in 7.2.4.7) impairment of functioning and diagnostic groups (degree of depression) will be discussed in Chapter 8.

The interpretations and conclusions are discussed in Chapter 8.

8 Interpretations and conclusions

8.1 Introduction

Presentation of the descriptive results and inferential results were reported in chapters six and seven respectively. In this chapter the most important interpretations are given.

- To improve early identification of depressive disorders in childhood (Phase I)
- To improve accurate diagnosis of depressive disorders in childhood (Phase II)
- To develop a schedule depicting stepwise strategies for appropriate assessment of depressive disorders based on different levels of care to improve mental health services for young people.

Phase I: To improve early identification

Several different screening instruments are to be assessed with a view to selecting the most appropriate screening instrument to be used as a tool for the identification of depressive disorders.

Phase II: To improve accurate diagnosis

The relationship between the components of DSM-IV-PLUS diagnostic criteria and age and developmental stage criteria for depressive disorders is assessed. Certain developmental symptoms (for children of a specific age group) might guide the clinician in the use of the DSM-IV Criteria.

The research study was designed to meet the following aims:

- The early identification of depressive disorders by comparing different screening instruments for the teacher
- The improvement of accurate diagnosis by the clinician of a depressive disorder by refinement of the DSM-IV-PLUS diagnostic criteria to account for developmental stage (Phase II). (Refer to 5.4.2.4)

The research objectives were met. The most important findings are the following:

- Multiple informants contribute to the early identification of depressive disorders in children.
- The DSRS has only limited value as a screening instrument.
- A drop in general school functioning helps to identify depressive disorders.
- A drop in school marks indicates a depressive disorder until proven otherwise.
- Identification of psychosocial stressors by the teacher helps to identify depressive disorders.
- A modified behaviour checklist helps to identify comorbidity.
- Teachers are able to complete the screening instrument adequately.
- The doctor's screening is better in some respects.
- The teacher's and doctor's screenings are similar in many respects.
- The teacher's screening is better in one respect.
- Depressive symptoms did not vary according to racial subgroups.
- The use of DSM-IV Criteria for depressive disorder in children should be supplemented by an assessment of age- and developmental stage-related criteria since the developmental symptoms influence the clinical presentation of depressive disorder in children.
- A failure in making expected weight gains did not contribute to diagnosis in this study.
- The modified diagnostic algorithm has only limited value.
- The five best predictors of depressive disorders in childhood were identified.
- The Functional Screening Instrument for Depressive Disorder in Childhood facilitates early identification of depressive disorders.
- The symptoms of anxiety might be added to the DSM-IV Criteria. This research supported previous studies that showed that it is difficult to distinguish between pure depressive disorders and anxiety disorders in children.

- Stepwise strategies are suggested for assessment of depressive disorders in childhood.

8.2 A discussion of each finding

8.2.1 Multiple informants contribute to the early identification of depressive disorders in children

Several different teacher-screening instruments have been developed and compared for early identification of depressive disorder. These teacher-screening instruments represent the beginning of the diagnostic process, using multiple informants.

The child started off by completing the Depression Self Rating Scale as a screening instrument. The teacher completed 3 specific instruments:

- The learner's school functioning was assessed with particular attention to a drop in average marks.
- The teacher's sensitivity to psychosocial stressors was assessed. In comparing the teacher with the doctor, the three most important psychosocial stressors as identified by both parties are peer-group rejection, family disruption, poor socio-economic situation.
- The modified behaviour checklist has been developed to identify comorbid psychiatric symptomatology. The high ratings by teachers on most of the items showed that teachers did benefit from the limited training sessions.

8.2.2 The DSRS has only limited value as a screening instrument

Depression Self-Rating Scale:

Despite its shortcomings, the Depression Self Rating Scale (DSRS) can be used as a screening instrument, specifically in high-scoring patients, as it was shown again here to have a significant relationship with the chosen diagnostic groups.(Refer to 7.1.1.1 and 7.1.1.2.)

Referring to the DSRS scores, 45% of children scored low, (< 9) and were not depressed, 24% scored between 10 and 12 (mildly depressed) and 30% scored equal or more than 13 (moderately depressed).

Specific high DSRS responses were recorded on the following items:

I feel like running away (72%), I don't enjoy my food (70%), I don't like to talk to my family (78%), I don't sleep well (64%).

One of the shortcomings of the DSRS is that it does not evaluate impairment in functioning. Therefore, the DSRS was used here in combination with assessment of school functioning.

The teacher's screening instrument, consisting of assessment of school functioning, psychosocial stressor identification and the modified behaviour depressive checklist together with the Depression Self-Rating Scale, is henceforth called the Functional Screening Instrument for Depressive Disorders in Childhood (FSIDDC).

8.2.3 A drop in school marks indicates a depressive disorder until proven otherwise

Two-way frequency procedure: The Chi-Square test of the doctor's assessment of decline in school marks by diagnostic group revealed that 52% of children who had no decline in school marks, had no diagnosis either. (Refer to 7.1.2.1.)
In the mildly depressed group, 66.1% of the children had a 5 - 10% decline in school marks. (Refer to 7.1.2.1.)

Actual school marks:
When calculated as the difference between term marks, the drop in average school marks was greater between terms 1 and 2 (75.34%) than between terms 1 and 3 (63%). (Refer to 6.6.)

The loglinear analysis investigated the interaction between categorical variables in a frequency table, viz. teacher's assessment of decline in actual marks and the diagnostic groups. (Refer to 7.1.2.3.)

There is a significant interaction between the diagnostic group 0 and no decline in school marks, as assessed by the teacher.

Furthermore, there is no interaction between children with no decline in marks and those suffering from a moderate depression. (Refer to 7.1.2.3.)

The loglinear analysis of the interaction between the depressive groups and the doctor's assessment of a drop in school functioning revealed that there is a significant interaction between the no diagnosis group and the children whose school marks remained the same. (Refer to 7.1.2.2.)

There is no significant interaction between the moderately depressed child and marks that stay the same. (Refer to 7.1.2.2,)

The strong loglinear interaction suggests that a drop in school marks may be a strong indicator of a depressive disorder. However, the effect was not examined for other diagnoses.

A drop in actual school marks, together with essential symptoms of DSM-IV diagnostic criteria, the teacher's assessment of school functioning, and the teacher's assessment of school marks are sensitive predictors of diagnosis by diagnostic groups of depressive disorder. (Refer to 7.2.4.4.)

From the research:
Essential symptoms remained the best predictors of a depressive disorder. Although essential symptoms remain the best tool for actually making the diagnoses of a depressive disorder, a drop in school marks is the best warning sign that the child might have a depressive disorder.

8.2.4 Identification of psychosocial stressors by the teacher helps to identify depressive disorders

The association between psychosocial stressors and depressive disorders in children has been researched and demonstrated in some cases. (Refer to 2.2.3.)

This relationship has been demonstrated in this study as the average child who suffers from a moderate depressive disorder had 3.5 stressors. (Refer to 6.3.3.2.)

8.2.5 Modified behaviour checklist helps to identify comorbidity

The modified behaviour checklist is a useful tool for parents or the teacher to screen the child for comorbidity. Both doctor and teacher completed the modified behaviour checklist. (Refer to 6.3.4 and 7.1.3.1.)

The doctor did a direct clinical interview with the child and the parent and is well trained in the symptomatology of depressive and anxiety disorders. This will explain the high identification of depressive and anxiety symptoms.

The Spearman correlation analysis comparing the doctor's screening instrument variables and variables from clinical interview revealed that the doctor's assessment of school functioning has a high correlation and significant p-value with the clinical interview variables, e.g., essential features, additional features, effect on functioning, diagnosis, and developmental stage criteria. (Refer to 7.2.4.3.)

The doctor's screening assessment of depressive and anxiety symptoms had a high correlation and significant p-value with additional and essential DSM-IV-PLUS criteria, as well as with developmental stage criteria. (Refer to 7.2.4.3.)

Accurate assessment of modified behaviour checklist items by the teacher will alert teachers to become more sensitive to the presence of comorbid psychiatric disorders as well as depressive disorders.

8.2.6 Teachers are able to complete the screening instrument adequately

When comparing the doctor and teacher assessment of the same screening instruments using the Spearman correlation analysis, there is a significant p-value and a high correlation between doctor and teacher psychosocial stressor identification. (Refer to 7.1.3.)

Comparing doctor and teacher evaluation of the assessment of school functioning and drop in school marks both could identify decline as demonstrated by high correlation and significant p-values. (Refer to 7.1.3.1.)

The teacher's assessment of school functioning and drop in school marks, together with essential symptoms of DSM-IV, have been shown to be sensitive predictors of depressive diagnosis, according to diagnostic groups. (Refer to 7.5.2.)

8.2.7 The doctor's screening is better in some respects

The doctor's screening could differentiate between mild and moderate-severe depressive disorders – the teacher's screening could only differentiate between non-depressed and depressed groups. (Refer to 7.1.3.3.)

This was confirmed by the results of the Kruskal-Wallis one-way ANOVA - test, doctor and teacher evaluations by diagnostic groups.

The doctor's assessment of a drop in school marks could distinguish between different depressed diagnostic groups, while the teacher could only distinguished between depressed and non-depressed groups. (Refer to 7.1.3.3.)

The Wilcoxon signed rank test comparing doctor versus teacher evaluations showed that the doctors were more accurate in their identification of depressive and anxiety symptoms. This is to be expected as the doctor did a direct clinical interview that is sensitive for identification of depressive disorders. (Refer to 7.1.3.2.)

8.2.8 The teacher's and doctor's screenings are similar in many respects

The results of the Wilcoxon signed rank test for comparing doctor versus teacher evaluations of decline in school marks showed that both doctor and teacher gave accurate descriptions of decline in school marks with no significant differences between them. (Refer to 7.1.3.2.)

Comparing doctor and teacher assessment of the same screening instruments, using the Spearman correlation analysis demonstrated a high and significant correlation between both the doctor's and teacher's assessment of school functioning, drop in school marks, and psychosocial stressor identification. (Refer to 7.1.3.2.)

8.2.9 The teacher's screening is better in one respect

The results of the Wilcoxon signed rank test comparing the school functioning evaluations of the doctor versus the teacher showed that teachers gave a more sensitive rating for decline in school functioning. This is expected as the teacher is objectively observing the child in class on a daily basis and is aware of changes in classroom behaviour. (Refer to 7.1.3.2.)

The teacher-screening instruments, consisting of assessment of school functioning, psychosocial stressor identification, and the modified behaviour checklist together with the depressive self-rating scale (DSRS) is called the Functional Screening Instrument for Depressive Disorders in Childhood (FSIDDC).

8.2.10 Depressive symptoms did not vary according to racial subgroups

Racial subgrouping showed that depressive symptoms are common and similar to different subgroups. However, both doctors and teachers rated a higher number of symptoms on the behaviour checklist for non-European than for European children. The difference on the behaviour checklist might reflect some of the difficulties of cross-cultural assessment.

8.2.11 Developmental stage- and age-related criteria should be considered during the use of DSM IV diagnostic criteria for depressive disorders in children

From 15 possible developmental stage-related criteria for depressive disorders, 5 symptoms are significant by diagnostic groups, i.e., feeling unloved, sad appearance, feeling lonely, somatic complaints and worry. (Refer to 7.2.2.2.) These symptoms should be used as a guide to the clinician in the use of the DSM-IV diagnostic criteria, as they identify specific age and developmental stage depressive symptoms (ages 10 - 14 years).

The application of developmental stage-related criteria for depressive disorders in children should form part of the clinical assessment of all depressive disorders, as this forms an essential part of early diagnosis of depressive disorders, together with DSM-IV-PLUS criteria.

The Spearman Correlation analysis between the different parts of the DSM-IV-PLUS criteria and between the diagnosis and developmental criteria revealed that a very high correlation and significant p-value exist between the following

developmental criteria and the essential criteria: essential criteria and their effect on functioning; essential criteria and additional criteria; as well as diagnosis and its effect on functioning. (Refer to 7.2.4.1.)

Results from Kruskal-Wallis one-way ANOVA comparing the variables (additional, essential features of DSM-IV-PLUS and developmental criteria) could not only distinguish between depressed and non-depressed children, but also between mild and moderate depressive groups. (Refer to 7.2.4.2.)

The Chi-Square test of developmental stage symptoms by diagnostic categories showed the following results:

Developmental symptoms for depressive disorders that were significantly dependent on the depressive groups included feeling unloved, unhappy, sad

appearance, withdrawn, feelings of worthlessness, poor self-esteem, feeling lonely, worrying and somatic complaints. (Refer to 7.2.2.1.)

The loglinear analysis investigating the interaction between developmental stage symptoms and diagnostic groups demonstrated that while feeling unloved was not present in children who had no depressive diagnosis, feeling unloved was present in children with a moderate depressive disorder. (Refer to 7.2.2.2.)

The loglinear analysis investigating the positive interaction between developmental stage symptoms and depressive groups identified the following developmental symptoms: (Refer to 7.2.2.3, 7.2.2.4, 7.2.2.5, 7.2.2.6.)

Feeling unloved
Sad appearance
Feeling lonely
Somatic complaints
Worry.

The above-mentioned developmental symptoms showed a positive interaction in the age group 10 - 14 years, with children diagnosed with mild to moderate depressive disorders. These developmental symptoms are age- and development-specific and inclusion as supplementation to the DSM-IV-PLUS symptoms for diagnosing depressive disorder would ensure accurate diagnosis.

8.2.12 A failure in making expected weight gains did not contribute to diagnosis in this study

Failure to make expected weight gain as a sign of depressive disorder could not be demonstrated in this study, as no statistical relationship could be found between children suffering from depressive disorders and failure to make expected weight gain. (Refer to 6.5.)

This finding might inform future decisions about the inclusion of this item in the DSM-IV criteria.

8.2.13 The modified diagnostic algorithm has only limited clinical value

The following restrictions were identified:
The modified diagnostic algorithm does not assess school functioning.

The modified diagnostic algorithm does not assess adequately developmental stage-related criteria.

The modified diagnostic algorithm can differentiate between the no-diagnosis group and the moderate-severe group

The modified diagnostic algorithm cannot identify mild depressive disorders

The modified diagnostic algorithm plays an important part in the diagnosis of moderate depressive disorder but is not sensitive enough to identify mild depressive disorder as demonstrated by the loglinear analysis investigating the interaction that exists between the modified diagnostic algorithm and diagnostic groups. A significant interaction existed between the diagnostic algorithm with a low score and no diagnosis group and between a moderate diagnosis (2) and a moderate score on diagnostic algorithm. (Refer to 7.2.3.)

8.2.14 The best predictors of depressive disorders in childhood

Early identification and accurate diagnosis of depressive disorders in primary school children were improved by the identification of the best predictors of depressive disorders in children. In addition to the essential DSM-IV diagnostic criteria, including *feeling anxious*, the following parameters were identified:

Doctor's completion of the modified behaviour checklist; teacher's assessment of drop in school marks and decline in school functioning; and actual drop in school marks.

8.2.15 The symptom of anxiety might be added to the DSM-IV Criteria for depressive disorder

The direct clinical interview includes components of DSM-IV criteria for depressive disorders for children, adding one essential symptom, *feeling anxious*, and one additional symptom, *worry*, as described by the Task Force on DSM-IV depressive disorders. The symptoms *worry* and *feeling anxious* were experienced by children who were diagnosed as suffering from depressive disorders. Ryan et al, 1987:854, who studied 296 children with major depressive disorders, revealed after factor analysis an "anxious" and "endogenous" factor, as has been found in many adult studies.

The two-way frequency procedure (Chi-Square test) for individual developmental symptoms of essential and/or additional features of the DSM-IV-PLUS, e.g., *feeling anxious* and *worry*. Both the symptoms *worry* and *feeling anxious* are significant by diagnostic groups.

The loglinear analysis investigated the interaction between the additional feature (worry) and the diagnostic group and found a significant interaction between no diagnosis of depression with no symptom *worry* where children who suffer from a moderate depression diagnostic group 2 did suffer from the symptom *worry*. The same could be said of the loglinear analysis that investigated the interaction between the essential feature, *feeling anxious*, and the diagnostic group.

Adding the above-mentioned symptoms to DSM-IV diagnostic criteria for depressive disorders should improve the sensitivity of the diagnostic criteria to identify children with depressive disorders more accurately than their standard counterparts. (Refer to 7.2.2.2 and 7.2.2.3.)

From the age and developmental-related depressive symptom list, five symptoms were positive in their interaction with the different diagnostic groups, including the symptom *worry*. Rosenberg et al, 1992:157 highlighted the higher incidence of somatic complaints and anxiousness in children suffering from depression.

8.2.16 A drop in general school functioning as measured by the FSIDDC (Functional Screening Instrument for Depressive Disorders in Childhood) helps to identify depressive disorders

The teacher's screening instrument used in this study (Appendix A) is henceforth called the *Functional Screening Instrument for Depressive Disorders in Childhood* (FSIDDC).

The FSIDDC addresses the problems in making early and correct diagnosis of depressive disorders in children by the following:

- The use of multiple informants, starting with the class teacher
- Depressive symptom counting and functional impairment assessment

When comparing the teacher's and doctor's assessments of a drop in school functioning versus a drop in average marks, the drop in average marks represents a more sensitive predictor.

Teachers report a change in school marks in ± 50% of school children, negligence in doing homework in 38%, decline in peer-group interaction in 37%, with 42% of children battling to concentrate in class.

According to the results of the Wilcoxon signed rank test comparing doctor and teacher evaluations, there is a statistically significant difference between the doctor's and teacher's ratings of decline in general school functioning. (Refer to 7.1.3.2 and 8.2.9.)

A 5 - 10% drop in school marks is found in 39 children who were mildly depressed according to the diagnostic group, while 17 were moderately depressed according to the moderate diagnostic group.

A 11 - 20% drop in school marks is found in 13 children who were mildly depressed.

No change in school marks was found in 42 children who had no depressive diagnosis according to diagnostic groups.

Doctors could distinguish between the different diagnostic groups (mild and moderate depression) by decline in school functioning. (Refer to 7.1.3.3.)

Teachers could only distinguish between depressed and non-depressed groups in respect of decline in school functioning.

This result is expected as the doctor did a clinical interview with the child and the parent and is trained to do clinical assessments. (Refer to 7.1.3.3.)

The positive correlation between the number of depressive symptoms identified by the doctor and the different screening instruments and the diagnostic groups demonstrates that the moderately depressed child (diagnosis 2) clinically presented with the highest number of depressive symptoms. Furthermore, the moderately depressed child showed the highest score on the functional screening instrument, as well as the highest number of social stressors. The depressive symptom count consists of the sum of the essential symptoms plus additional symptoms plus developmental symptoms - duplicated symptoms were excluded.

This screening instrument, FSIDDC, measures the symptom count, impaired school functioning, psychiatric stressors and behaviour of the child in the classroom. Therefore, this instrument will initiate and facilitate the diagnostic process.

It is important to apply the instrument in the school/classroom situation since the teacher is the first person who would be able to pick a drop in school functioning. The diagnostic process thus starts with the teacher and should be followed by the clinical interview.

8.2.17 Suggested stepwise strategies for assessment of depressive disorders in childhood

The FSIDDC was developed depicting stepwise strategies for appropriate assessment of depressive disorders based on different levels of care to improve

mental health services for young people and to streamline control over diagnostic and management processes.

The reasons for using separate questionnaires are as follows:

- Growing evidence indicates that anxiety and depressive disorder onset may involve prodromal build up of symptoms and that stressful life events may precipitate gradual symptom increase, leading to the development of full-blown disorders (Rueter et al, 1999:726).
- Csorba et al, 2001:18 identified moving to a new school, somatic illness, and mental health disorders of family members as independent risk factors for depression in children.
- A study done by Wu et al, 1999:1090 highlighted the need for more effective ways to identify and refer depressed children to mental health professionals; the importance of improving school–[based services to meet children's needs; and the necessity to better educate parents and teachers about the identification of psychiatric disorders, especially depression.
- Zahn-Waxler et al, 2000:443 highlighted the need to study anxiety and depressive disorders within a developmental psychopathology framework, including their comorbidity with externalising problems, which is why the checklist of behaviour items was included.

Step 1: Training of teachers

Teachers receive awareness training by a qualified professional mental health worker on depressive disorders in primary school children and instructions on how to complete the functional screening instrument for depressive disorders in childhood.

Step 2: Identifying learners with decline in marks and screening them

Teachers identify all children with a decline in average marks on a quarterly basis, and complete the functional screening instrument.

Step 3: Complete DSRS

Identified learners each completes the DSRS, which is scored according to no depression (< 9), mild depression score between 10 and 12, moderate depression score equals 13 or more.

Step 4: DSRS mild to moderate score

Learners who received a mild and/or moderate score on the DSRS are referred by the teacher to community services for clinical evaluations by a general practitioner who receives the results of the screening instrument from the referring school.

Step 5: Clinical interview by general practitioner in community
A community doctor is trained and supervised by the Department of Psychiatry (Sub-speciality Child psychiatry).

The community doctor repeats FSIDDC and completes the standard DSM-IV diagnostic evaluation with added developmental symptoms during a clinical interview.

Step 6: The community doctor makes an accurate diagnosis by synthesising all information based on conventional psychiatric assessments, e.g., excluding general medical conditions and/or substance-induced conditions, and other comorbid psychiatric conditions.

Step 7: Feedback and control of this diagnostic process should be overseen by the child psychiatric institutions at universities. Continued interaction and exchange of knowledge and know-how between community general practitioners and psychiatrists should occur, especially concerning the management or referral of difficult patients to tertiary institutions and the ongoing teaching of new management of depressive disorders.

8.3 In conclusion

8.3.1 The FSIDDC facilitates early identification of depressive disorders in childhood

The advantages of the FSIDDC are the following:
Early identification of depressive disorders in primary school children is enhanced by monitoring school marks to identify any decline; identifying psychosocial stressors associated with depressive disorders; and identifying decline in school functioning.

It is a user-friendly, cost- and time-effective instrument that can be used in the child's school environment ensuring easy accessibility.

Early identification of depressive disorders will result in early intervention preventing the development of a serious depressive disorder.

8.3.2 DSM-IV criteria should be supplemented with age and developmental stage related criteria to guide the clinician in the use of DSM-IV criteria (age group 10 – 14)

Following the stepwise strategies will contribute to early identification and accurate diagnosis by the general practitioner in the community who will then assess the child using the FSIDDC instrument: DSM-IV criteria supplemented with developmental and age-related symptoms.

The DSM-IV criteria should consist of the DSM-IV standard criteria and should be supplemented with age and developmental symptoms to guide the clinician in the symptoms *feeling anxious* and *worry*, and the five identified developmental symptoms, e.g., feeling unloved, sad appearance, feeling lonely, somatic complaints and worry.

The limitations of this research and future directions are discussed in Chapter 9.

9 Strong points, limitations and future research directions

This study highlighted the importance and role of the school teacher in objectively evaluating behaviour in class; stressors in the learner's environment; school and academic functioning. The important association of depressive disorder and psychosocial stressors, self-report scale as subjective evaluation of mood, and the importance of comorbidity as rated by the modified child behaviour checklist is also highlighted.

9.1 Strong points

The role of DSM-IV-PLUS Diagnostic Criteria for depressive disorders and the acknowledgement of age- and developmental-related depressive symptoms

- This research study ensures stepwise strategies for assessment of depressive disorders in childhood and has been developed to improve early identification of depressive disorders in primary school children by using the instrument (FSIDDC).

- The conceptual schedule with stepwise strategies streamlines control over the diagnostic and management process.

- A functional screening instrument for depressive disorders in childhood is developed. The first part of the instrument identifies early decline in academic functioning (drop in school marks); is a warning signal of a depressive disorder; emphasizing immediate psychological/ psychiatric evaluation.

- The second part of the functional screening instrument identifies decline in general school functioning and includes the different areas of functioning, e.g., homework, school attendance, sports, hobbies, interpersonal functioning, that play a vital role in normal childhood development. Any decline in school

functioning should be rapidly identified in order to refer the learners for psychiatric assessment.

- Furthermore, accurate diagnosis of depressive disorders might improve when age- and developmental-related depressive symptoms are taken into account, in addition to standard DSM-IV diagnostic criteria, suggesting that the following symptoms should be researched: worry, feeling anxious, feeling unloved, sad appearance, feeling lonely and somatic complaints, in children 10 - 14 years of age.

- The best predictors of depressive disorders in children have been identified and include the doctor's completion of the modified child behaviour checklist; the teacher's assessment of a drop in school marks and school functioning; and an actual drop in term marks.

- Adding age-related developmental depressive symptoms to the standard DSM-IV diagnostic criteria for depressive disorders might improve the sensitivity for specific problems, according to the child's needs in that age group and ensures early accurate diagnosis.

- The DSRS is a useful tool for screening depressive symptoms in late childhood. The DSRS shows good known-groups validity, and can discriminate significantly between depressed and non-depressed children with very few false positive errors (classifying non-depressed children as depressed).

- This study includes also less severe depressive disorders in children, in contrast with most other studies that focus on more severe depressive disorders.

- This study used a large sample of children: 165 from 201 children were evaluated by a direct clinical interview.

- FSIDDC is a cost-effective, user-friendly instrument, easily applied by the class teacher in the classroom, which integrates the information from the child (DSRS); the teacher's observation of the child's school performance (school functioning assessment); life stressors identification; and behaviour in the classroom (modified behaviour checklist).

- The FSIDDC is used in the community for screening for depressive disorders of large samples of children and is accessible to all children in the community. Therefore, it plays a vital role in the screening of mental health, and rendering of mental health services in the poor suburban or rural communities where severe scarcity of resources (professional health staff members) exists.

- This study increases the awareness levels of teachers and parents of depressive symptoms in children, as letters of information are sent to both the parents and the teachers followed by training of teachers and the clinical interviews with the child and parent explaining the concept of risk factors in the development of depressive disorders. These trained teachers will be better equipped in future to identify depressive disorders early, with earlier referral to the mental health services for early intervention and management.

- The diagnosis of depressive disorders might be improved on the basis of the results of this study. The needs of the late middle childhood (10-14 years) age group have been identified and should be re-tested in other research studies in order to make a contribution in this field.

- The assessment of the child in the classroom situation by the teacher has the benefit of objective evaluation by the teacher. At home a possibly depressed parent may not be sensitive to his or her child's needs.

- Peer-group interaction as a risk factor for the development of depressive disorders can now be identified early to prevent this delaying influence on the general development of the child. Not only do the peer-group influences stimulate immediate and long-term social and cognitive growth, they also offer the opportunity for specific learning skills. Teachers may now be included in peer-group monitoring and intervention planning.

- Referring to the outcome of the research study, the application of a combination of variables may accurately predict the correct diagnosis. Drop in average marks is a strong predictor for the diagnosis of a depressive disorder, and should be combined with the completion of the modified behaviour checklist by the doctor.

- This research study emphasises the importance of the multi-factor integrative model, as environmental factors interact with genetic factors: severe psychosocial stressors in a genetically high-risk patient might trigger a depressive disorder. (Refer to 2.2.4.)

- This study managed to pool various resources in the child's community to address the challenge of scarcity of mental health resources for children and adolescents

- This study demonstrates that functional impairment is an absolute imperative in the diagnosis of depressive disorders in children and adolescents, because the results of this study showed that high scores on functional impairment correlated with moderate diagnosis of depressive disorders.

9.2 Limitations

9.2.1 Limitations of design: aetiological considerations

- Genetic vulnerability to depressive disorders was not examined. The complexity of genetic contribution to development of depressive disorders has been demonstrated. (Refer to 2.2.1.2.) One possible explanation is that genetic influences operate on personality and temperamental factors and sociability, affecting the full range of depressive symptomatology.

- Psychosocial stressors were not examined differentially according to developmental stage. The presence of specific psychosocial stressors for each developmental Stage might did the construction of developmentally appropriate intervention programmes.

- The relationship between the psychosocial stressors and the comorbid disorders was not examined. Although the different comorbid symptoms were rated as part of the modified child behaviour checklist, the diagnosis of a comorbid disorder was not made by a direct clinical interview.

- The influence of comorbid disorders on the accurate diagnosis of depressive disorders was not studied in detail. Screening was performed for comorbid disorders, but they were not diagnosed according to DSM-IV criteria. The influence of comorbidity on the diagnosis of depressive disorders could not be studied.

- The role of attachment in the development of depressive disorders was not examined. Early attachment forms the cornerstone of the developmental process of the child - depending on parent-child interaction, child characteristics and life circumstances, where the parental sensitivity to the child's needs secures attachment. The quality of early mother-child relationship is a primary determinant of later development and health.

- Physiological markers as indicators of a vulnerability to develop depressive disorders were not examined. Biological indicators for depressive disorders

might be identified and researched in the different age and developmental groups.

- Re-test of the research sample to assess the level of the depression after the initial evaluation was not done. Re-test in this research sample would have been problematic as the research sample reflected a highly mobile if not disrupted population. (Refer to 5.9.4.) Even if re-testing were possible, the same results would be expected, because the decline in school functioning was established over a 12-month period between terms. Furthermore, specific psychosocial stressors were also established.

9.2.2 Limitations of study population and sample: a skewed sample?

- From the 600 consent forms that were sent to parents, only 201 gave consent. This sample had a high risk for psychiatric problems, as parents might have seen this research as an opportunity to refer their children for psychiatric evaluation. Children from this community experience financial problems and do not have access to medical aids.

- The sample was limited to only one age group (10-14 years). This age group may verbalise feelings of hopelessness and low self-esteem or may be associated with mixed depressed/anxious syndrome. Preschoolers in contrast may present with irritability, excessive crying and may not be able to express depressive feelings or may present with unstable patterns. These results cannot be generalised to all children.

9.2.3 Limitations of instruments

- Depression self-rating scale: DSRS misclassifies ± 25% of the population. There is a wide variety of symptoms covered by the scale. Self-report scales for depressive disorders may be completed inaccurately owing to denial of symptoms. The DSRS does not address impairment in school functioning and should be used in combination with the teacher's screening instrument for school-functioning assessment.

- Teacher school-functioning assessment: Teachers need training and motivation to complete this instrument while demonstrating sensitivity to their children's needs.

- The modified behaviour checklist consists of a constellation of different symptoms for screening but does not make a diagnosis. Teachers need to be trained and motivated to complete this instrument.

- The DSM-IV diagnostic criteria instrument: DSM-IV-PLUS symptoms were divided into several classes, e.g., essential features, adding *feeling anxious*,

additional features, adding *worry*, effect on functioning, patterns of depressed mood. Irritable mood formed part of the DSM-IV-PLUS as a specific child-related DSM-IV depressive symptom; as well as failure to make expected weight gains. Another additional symptom added was hypervigilance to identify children who suffers from anxiety and depressive disorder.

- The mild depressive disorder (diagnostic group 1) consists of minor depressive and recurrent brief depressive disorder, and are of the same severity as major depressive disorder, but are classified in this study as part of the moderate depressive group (diagnostic group 2).

- Positive findings (symptoms were significant by diagnosis) suggested that certain developmental stage-related symptoms, viz. *feeling anxious* (as essential feature) and *worry* (as additional feature) should be added to the standard DSM-IV diagnostic criteria to improve sensitivity, but more research is needed to test the above-mentioned findings.

- Diagnostic algorithm: The diagnostic algorithm was matched with corresponding symptoms or those as close as possible to the DSM-IV-PLUS criteria for depressive disorders. Not all the exact symptoms of the diagnostic algorithm could be matched to the DSM-IV-PLUS diagnostic criteria.

- The DISC-R (Diagnostic Interview Schedule for Children Revised) with its well-validated outcome criteria would have been the ideal instrument to use in this study. However, this instrument was not used owing to time and financial constraints. Instead, to overcome the problem of financial and time constraints, the study was completed in two phases, viz. the screening, then the follow-up (clinical evaluation).

9.2.4 Limitations of data collection

- The teacher's completion of the screening instrument was not always accurate. Not all the teachers were motivated to complete the screening forms accurately. Teachers worked under stressful conditions, e.g., large numbers in their classes, marking papers, preparing for classes.

- Children's recall of the time period and the pattern of their depressed mood was difficult to establish. Some children between the ages of 10 and 14 years can verbally express their hopelessness and low self-esteem; other children in this age group might have problems in recalling specific depressive symptoms because of a variety of other symptoms, while irritability or anxiety or even other disorders may further complicate the clinical picture.

9.2.5 Limitations of analysis

- Condensation of the six DSM-IV diagnostic categories into the three diagnostic groups may have resulted in loss of important clinical information about specific criteria of depressive disorders in children.

- The question whether the less severe depressive disorders necessarily develop into more severe depressive disorders was not examined. Follow-up studies need to be done in order to establish the developmental course of depressive disorders in children.

- The question whether a depressed mood poses a risk for the development of a depressive disorder was not examined. The intrinsically "unstable" nature of children's affect ranging from continuing shifts and transformations in the interpersonal, cognitive, somatic and environmental areas needs to be explored.

- Referring to the agreement and disagreement between two independent sources, e.g., doctors and teachers, where similar numbers of children were described as stubborn, no information is available on whether doctors and teachers chose the same children. This problem should be addressed in future studies.

9.3 Future directions

9.3.1 Clinical applications

- The FSIDDC could be used regularly to detect new depressive disorders or relapses in primary as well as secondary school children. Depressive disorders

are associated with stressors in the child's environment that may trigger a relapse or maintain a depressive disorder in children. (Refer to 2.2.3.)

- The FSIDDC could be used to monitor the response to treatment in children suffering from depressive disorders.

- The stepwise strategies streamline control over the diagnostic and management processes.

- The FSIDDC could be used as a training instrument for mental health professionals and medical students in the community services, despite the severe surplus of patients and the limited time available.

- In the final analysis it will prove to be cost effective and time effective.

- The importance of the modified child behaviour checklist is based on the fact that comorbidity in a child increases the risk for development of depressive disorders.

9.3.2 Future research

- The natural history of the less severe depressive disorders needs to be studied in order to establish intervention planning for treatment and follow-up of depressive disorders.

- Methods of physiological screening for depressive disorders need to be developed to establish biological markers for the early identification of "at risk" children using the so-called "trait marker", as well as markers to identify children with a current depressive disorder, "state markers".

- Other age groups or developmental stages should be included, and the sample should be stratified according to age or developmental stage to enable the clinician to assess the children according to their age and developmental stage.

- DSM-IV criteria need to be revised to incorporate important findings of this study. Incorporating depressive symptoms such as feeling lonely, worry, and feeling anxious as part of the revised DSM-IV diagnostic criteria might improve accuracy of the diagnosis of depressive disorders in children. These refinements of DSM-IV criteria should be followed up in future studies.

- Future studies should follow up children who have been assessed by the revised DSM-IV diagnostic criteria in order to identify early predictors of suicide to prevent completed suicide in later years.

- The FSIDDC could make a valuable tool in epidemiological research for the screening of large populations in order to identify early depressive symptoms with a decline in school performance to enable earlier intervention and management of depressive disorders. Vital information on demography, age, prevalence and course of depressive disorders will be collected.

- Screening forms for detecting depression in parents need to be developed as the children of depressed parents have increased rates of major depressive disorders before puberty.

- Economic evaluations of the cost of early interventions for children and adolescents suffering from depressive disorder need to be done to help in the decision about the allocation of scarce resources.

- Peer interaction should be monitored using programmes that include teachers in intervention planning, where teachers monitor peer behaviours, and which need to be implemented at schools. These intervention programmes should be extended to include parents to enhance social skills.

- The syndrome of mixed depression and anxiety features has not only emerged in this research study but has also consistently appeared in other research with children and adolescents and needs to be further investigated in future studies, confirming that depression in primary school children manifests itself differently from the way it does in adults.

- Problems in the diagnosis of depressive disorders in children have been partly overcome. (Refer to 3.2.3 and 3.1.) DSM-IV-PLUS essential symptoms with the added symptom *feeling anxious* have been excellent predictors, together

with Dcheck (Doctor's modified behaviour checklist completion), Tfunct (teacher's assessment of functioning) and TF1 (teacher's assessment of a drop in marks) of depressive diagnosis. DSM-IV-PLUS (with *feeling anxious* included in essential symptoms) together with age- and developmental- related depressive symptoms will provide a more sensitive tool for accurate diagnosis. Strong positive, correlation exists between age and developmental stage-related symptoms and the essential symptoms of DSM-IV-PLUS.

- Referring to the "make-up" of DSM-IV-PLUS diagnostic criteria, three symptoms of anxiety have been included, viz. *feeling anxious*, *worry* as added symptom and *worry* as a developmental symptom. All the above-mentioned symptoms had a positive correlation with essential and developmental features. Confirming that anxiety symptoms are an essential part of the depressive diagnosis in childhood needs to be addressed in future studies.

- As far as distinction between anxiety and depression goes, ICD-IO combined both symptoms under the heading *emotional disorders*.

- The general practitioner who is confronted by a constellation of depressive symptoms should develop a treatment plan based on the child's degree of school and functional impairment, and the number of depressive symptoms present.

9.4 In conclusion

This research study reinforces the importance of early diagnosis of depressive disorders in primary school children in order to prevent the development of serious interpersonal and occupational problems in later years.

The *Functional Screening Instrument for Depressive Disorders in Children* forms an important tool for early identification of depressive disorders.

It is now possible to predict depressive disorders accurately by using the correct tool, e.g., the doctor's assessment of modified behaviour checklist items (Dcheck), teacher's assessment of functioning and a drop in marks.

Future studies should include DSM-IV criteria for anxiety disorders and depressive disorders separately, developing a anxiety scale with the necessary control group.

However, more research is needed to direct the use of the DSM-IV standard criteria to assess age and developmental stage-specific symptoms of depressive disorders.

Further research should include multi-disciplinary resources in the community and hospitals to establish a network of early identification, diagnosis and treatment for children suffering from depressive disorders.

Referring to the outcome of the research study, the application of a combination of variables may accurately predict the diagnosis. Multiple variables have shown a strong correlation with childhood depression. For example, both a drop in school functioning and a drop in school marks were good predictors of depression. These are easily detected by the teacher together with psychosocial-stressor identification. The value of this study is that the teacher-doctor partnership may be exploited to achieve the early detection of childhood depressive disorders, as well as making a more accurate and earlier diagnosis of the depressive disorder.

APPENDIX A:

Screening instrument for teacher: i.e. FSIDDC

(The Functional Screening Instrument for depressive Disorders in Childhood)

1 – Teacher

ASSESSMENT OF LEARNER'S FUNCTIONING

(To be completed by class teacher)

For office use only

Respondent No. D1 [ ] 1-3
Card No. D2 [1] 4

Date of assessment [D D M M Y Y Y Y] D3 [ ] 5-12

Name of School _____

Address of School : Physical _____

_____

Postal _____

_____

Telephone number of school: _____
code number

Fax number of school _____
code number

Type of school Primary _____

Secondary _____

Name and Surname of teacher: _____

DEMOGRAPHIC INFORMATION OF LEARNER

(To be completed by class teacher)

Current age in years					D4 13-14
Current grade					D5 15
Sex	(1)	M	F	(2)	D6 16
Race	(1)	Black	White	(2)	D7 17

Name and surname of parent/guardian _____

_____

_____

Tel. of parent/guardian Home _____

Work _____

Cell _____

2 - Teacher

HAVE YOU AS THE TEACHER NOTICED ANY OF THE FOLLOWING CHANGES IN YOUR LEARNER'S FUNCTIONING OVER THE LAST 12 MONTHS

1. Regardless how good or bad the marks were before, has there been a decline in the learner's scholastic performance over the past twelve months? (Drop in average marks)

	5-10%	11-20	21-30	31-40%
1	2	3	4	5

No change scholastic performance — Severe change scholastic performance

F_1 ☐ 18

2. Have you also noticed a problem with learner concentration in class? (For example: experience difficulty staying on task)

1	2	3	4	5

No problem with concentration — Severe problem with concentration

F_2 ☐ 19

3. Have you noticed a negligence in the doing of homework? (Homework not done or partially done)

1	2	3	4	5

Homework done — Homework not done

F_3 ☐ 20

4. Have you noticed a decline in peer-group interaction? (Does he/she have many friends or is he/she lonely)

1	2	3	4	5

Many friends — No friends

F_4 ☐ 21

5. Have you noticed a decline in interaction with authority (with teachers)? (Non-co-operative, negativistic, hostile)?

1	2	3	4	5

Co-operative — Non-co-operative

F_5 ☐ 22

6. Have you noticed that the learner is increasingly more absent from school?

1	2	3	4	5

No absence from school — Increasingly more absent from school

F_6 ☐ 23

7 Have you noticed a decline in selfcare? (Dirty, unwashed clothes and nails)?

1	2	3	4	5

Good selfcare — Selfcare severely neglected

F_7 ☐ 24

8. Have you noticed a decline in the interest of the child towards sport or hobbies?

1	2	3	4	5

No change — Stopped doing sport and hobbies

F_8 ☐ 25

3 – Teacher

WHICH OF THE FOLLOWING STRESSORS COULD BE OF RELEVANCE?

	1	2		For office use only	
Drug/alcohol abuse by learner	YES	NO	S_1		26
Physical abuse	YES	NO	S_2		27
Sexual abuse	YES	NO	S^3		28
Parental drug or alcohol abuse	YES	NO	S^4		29
Poor socio-economic situation	YES	NO	S^5		30
Parental mental illness	YES	NO	S^6		31
Peer-group rejection	YES	NO	S^7		32
Parental divorce	YES	NO	S^8		33
Family disruption	YES	NO	S^9		34
Major school changes	YES	NO	S^{10}		35

A CHECKLIST OF BEHAVIOUR ITEMS.

Please read carefully through this list and mark each of the relevant items concerning the behavior of the learner:

Behavior items	1	2			
Argues	YES	NO	C_1		36
Cruel to animals	YES	NO	C_2		37
Restless	YES	NO	C_3		38
Irritable mood	YES	NO	C_4		39
Forgetful	YES	NO	C_5		40
Disobedient	YES	NO	C_6		41
Destroys property	YES	NO	C_7		42
Seemed worried	YES	NO	C_8		43
Cries	YES	NO	C_9		44
Distract by outside stimuli	YES	NO	C_{10}		45
Fights	YES	NO	C_{11}		46
Sets fires	YES	NO	C_{12}		47
Shy	YES	NO	C_{13}		48
Feels alone	YES	NO	C_{14}		49
Careless mistakes	YES	NO	C_{15}		50
Stubborn	YES	NO	C_{16}		51
Steals at school	YES	NO	C_{17}		52
Headaches	YES	NO	C_{18}		53
Over tired	YES	NO	C_{19}		54
Fidgets with hands	YES	NO	C_{20}		55
Swears	YES	NO	C_{21}		56
Runs away	YES	NO	C_{22}		57
Stomach aches	YES	NO	C_{23}		58
Suicidal	YES	NO	C_{24}		59
Often leave seat	YES	NO	C_{25}		60
Tantrums	YES	NO	C_{26}		61
Truancy	YES	NO	C_{27}		62
Fears school	YES	NO	C_{28}		63
Unhappy	YES	NO	C_{29}		64
Difficulty awaiting turn	YES	NO	C_{30}		65
Threatens other	YES	NO	C_{31}		66
Alcohol/drugs	YES	NO	C_{32}		67
Fears to be alone	YES	NO	C_{33}		68
Withdrawn	YES	NO	C_{34}		69
Interrupts others	YES	NO	C_{35}		70

APPENDIX B:

Letter of information of Teacher

A LETTER OF INFORMATION OF THE CLASS TEACHER

1999-07-21
Tel: 3199500
Fax: 3199617

Dr Debbie vd Westhuizen
Senior Consultant Psychiatrist
Child and Adolescent Units
Department of Psychiatry

Dear Teacher,

Early identification of depressive disorders in children with recent changes in school functioning: the development of a functional screening instrument for primary school teachers.

Your school has been chosen as part of the main study in the development of a screening instrument. Information will be used for research only and will be treated on a confidential and anonymous basis.

Recent changes in a child's school functioning, may be the first sign of emotional problems; accompanied by the development of behaviour and emotional symptoms and triggered by psychosocial stressors.

You, as the class teacher, is in the ideal situation to make observations about changes in your group of children's school functioning.

In this research project, we would appreciate your input as follows:

To send the letter of information with the consent form via the children to all the parents/guardians as soon as possible. These consent forms need to be returned as soon as possible, to you the teacher.

Once the consent form is signed, you, the teacher will have the necessary permission to complete the screening form (for teacher) on each child in your class and the child must complete the self-report scales (for learner) under your supervision.

A final letter of information will be send by you to the parents to inform them that their child has been identified for an appointment for a clinical interview at either their school or at Weskoppies Hospital.

Your support and co-operation in the completion of the screening instrument is vital for the research. Your much-needed input is appreciated.

Yours truly,

Dr D v.d. Westhuizen
SENIOR CONSULTANT PSYCHIATRIST

Me E F Winkler
INTERN PSYCHOLOGIST

APPENDIX C:

Information and consent to parents

A LETTER OF INFORMATION TO THE PARENTS/GUARDIAN

1999-07-21
Tel: 3199500
Fax: 3199617

Dr Debbie vd Westhuizen
Senior Consultant Psychiatrist
Child and Adolescent Units
Department of Psychiatry
University of Pretoria

Dear Parent/Guardian

Depressive disorders in primary-school children: Development of a screening instrument and refinement of DSM IV criteria to account for developmental stage.

Recent changes in a child's school functioning, may be the first sign of emotional problems; accompanied by the development of behaviour and emotional symptoms that could be triggered by psychosocial stressors.

Your school has been chosen as part of a main study in the development of a screening instrument. Information will be used for research only and will be treated on a confidential and anonymous basis.

A class teacher is in the ideal situation to make observations about changes in a child's school functioning.

As your child's school has been identified for the research project; all parents of children attending grade 5 to 7 classes, need to complete the consent form; irrespective of whether your child is depressed or not.

Your signature on the consent form is vital for the success of this study. Your signature will enable the class teacher of your child to complete a screening form consisting of: assessment of school functioning, possible psychosocial stressors, the completion of self-rating scales for depression under the supervision of the class teacher. If your child is identified for a clinical interview, weight and height measurements will also be done by the investigator. The interview will take place at the school or at Weskoppies Hospital Child and Family Unit.

Your support and co-operation in the completion of the screening instrument is vital for our research. Your much-needed input is appreciated.

Yours truly,

Dr D vd Westhuizen
SENIOR CONSULTANT PSYCHIATRIST

Me E F Winkler
INTERN PSYCHOLOGIST

CONSENT FORM FOR THE PARENTS (To be completed by the parents)

Informed Consent **Protocol No: 62/99**

Depressive disorders in primary-school children: Development of a screening instrument and refinement of DSM IV criteria to account for developmental stage.

Research Study

Name of Parent

Name of child
.....
Grade: .....

I, ...name of parent/guardian, willingly agree that my child participates in this Research Study which has been explained to me in the letter received from Dr Debbie v/d Westhuizen, Senior Consultant Psychiatrist, and Ms E F Winkler, Intern Psychologist, Weskoppies Hospital, telephone number: 0824591411 or 3199500.

Rationale and Purpose of the Questionnaire

You and your child have been invited to participate in this research study. This study involves the early identification of depressive disorders in children (currently attending grade 5 to grade 7), with recent changes in school functioning; accompanied by the development of emotional and behavioural disorders; trigged by psychosocial stressors.

Recent decline in a child's academic performance, and peer group interaction, should be seen as signs of emotional problems.

Description of Procedures

You should understand that this study involves research. Eligibility criteria are standards used to assure that subjects who entered this study are psychiatrically appropriate candidates. More over, for your own and your child's well being, as well as to ensure that the results of this study can be useful for the development of a screening instrument. Initially a screening form will be completed by the teacher. If your child is identified for a clinical interview, weight and length measurements will be done by the investigator at the school or the Child and Family Unit at Weskoppies Hospital. It is important that no exceptions be made to these criteria for admission to the study.

Risks and Discomforts

The interviews used in this study and the questionnaires entail no risks and discomforts to you or your child.

Your signature on the consent form and swift return of the said form is vital for the success of this study. Your signature will enable the class teacher of your child to complete a screening form consisting of: assessment of school functioning, possible psychosocial stressors, the completion of self-rating scales for depression under the supervision of the class teacher, and a clinical interview if your child is identified. The interview will take place at the school or Weskoppies Hospital.

The Questionnaire consists of:

The first form to be completed is the consent form by the parents (**CONSENT FORM**). These signed consent forms must be returned as soon as possible, to the child's teacher.
Once the consent form is signed, the teacher will have the necessary permission to complete the screening form (**SCREENING FORM**) on each child in its class.

Once the consent form is signed, the child under the teacher's supervision can complete the self-reporting scales for depression. **(SELF-REPORT FORM)**
Once all the signed consent forms have been received, a final letter of information will be sent to parents to inform them that their child has been identified for a clinical interview at either their school or at Weskoppies Hospital; followed by treatment if needed.

Benefits

The benefits of early diagnosis of emotional disorders in children and validation of the Depression Self-rating scale for South African children, will enable us to address children's emotional needs much earlier, prevent the development of interpersonal relationship difficulties, poor academic achievement, poor family functioning and low self-image. This exercise will improve, not only your child's quality of life, but also those of other children with similar problems.

Voluntary Participation

Participation in this study is voluntary and consent may be withdrawn at any stage of the research.

Confidentiality

A record of the assessment while on the study will be kept in a confidential form.

I have read all of the above, had time to ask questions, received answers concerning areas I did not understand and I willingly give my consent to participate with my child in this research study.
Upon signing this form, I will receive a letter of information.

Parent's/caretaker's signature	**Parent's home telephone**	**Date**
	Parent's work telephone	
Teacher's signature	**Parent's cellphone**	**Date**
Psychiatrist's signature	**Neighbour's phone**	**Date**

Sincerely yours

Dr D vd Westhuizen
SENIOR CONSULTANT PSYCHIATRIST

Me E F Winkler
INTERN PSYCHOLOGIST

APPENDIX D:

Self-Rating scale for depression by learner

1 - learner

SELF-RATING QUESTIONNAIRES FOR DEPRESSION BY LEARNER

(To be completed by learner with the help of class teacher)

					For office use only			
Respondent No.				B_1				1-3
Card No.				B_2	1			4
Name								
Date								
Age	Years			B_3				5-6
Grade				B_4				7
Gender		M 1	F 2	B_5				8
Home language	AFR 1	ENG 2	Other 3	B_6				9
			Specify					

SELF-RATING SCALE FOR DEPRESSION BY LEARNER

Please answer as honestly as you can by indicating with a cross the statement that best describes how you have felt over the **past week**. There are no right or wrong answers. It is important to say how *you* have felt.

	0	1	2			
I look forward to things as much as I used to	Most of the time	Sometimes	Never	V1		10
I sleep very well	Most of the time	Sometimes	Never	V2		11
I feel like crying	Most of the time	Sometimes	Never	V3		12
I feel to go out to play	Most of the time	Sometimes	Never	V4		13
I feel like running away	Most of the time	Sometimes	Never	V5		14
I get tummy aches	Most of the time	Sometimes	Never	V6		15
I have lots of energy	Most of the time	Sometimes	Never	V7		16
I enjoy my food	Most of the time	Sometimes	Never	V8		17
I can stick up for myself	Most of the time	Sometimes	Never	V9		18
I think life is not worth living	Most of the time	Sometimes	Never	V10		19
I am good at things I do	Most of the time	Sometimes	Never	V11		20
I enjoy the things I do as much as I used to	Most of the time	Sometimes	Never	V12		21
I like talking with my family	Most of the time	Sometimes	Never	V13		22
I have horrible dreams	Most of the time	Sometimes	Never	V14		23
I feel very lonely	Most of the time	Sometimes	Never	V15		24
I am easily cheered up	Most of the time	Sometimes	Never	V16		25
I feel so sad I can hardly stand it	Most of the time	Sometimes	Never	V17		26
I feel very bored	Most of the time	Sometimes	Never	V18		27

APPENDIX E:

Second letter to the parents about clinical evaluation

A SECOND LETTER TO THE PARENTS TO INFORM THEM THAT THEIR CHILD HAS BEEN IDENTIFIED FOR A CLINICAL INTERVIEW.

1999-07-21
Tel: 3199500
Fax: 3199617

Dr Debbie vd Westhuizen
Senior Consultant Psychiatrist
Child and Adolescent Units
Department of Psychiatry
University of Pretoria

Dear Parent/Guardian

Depressive disorders in primary-school children: Development of a screening instrument and refinement of DSM IV criteria to account for developmental stage.

Your and your child's participation in the study up to this point are highly appreciated.

Your child has been identified for a clinical interview, which will include a measurement of your child's height and weight by the investigator. This clinical interview will enable the investigator to compare the results of the screening instrument (completed by the teacher) to the results of the clinical interview (completed by the investigator).

Comparison of these instruments forms the basis for the development of a sensitive and reliable screening instrument for early identification of depressive disorders in children.

The clinical interview is scheduled to take place at your child's school for your child's convenience or arrangements can be made to be seen at Weskoppies Hospital.

If you feel to contact the investigator, Dr Debbie vd Westhuizen, the following numbers are relevant: 3199500 (broadcast for dr D vd Westhuizen) or cellphone nr. 0824591411.

If your child is identified as someone who is suffering from a depressive disorder, your child will be referred to a mental health service for futher treatment.

Yours truly,.

Dr Debbie vd Westhuizen
SENIOR CONSULTANT PSYCHIATRIST

.....

Tear off slip

Name of child .....

I, mother/father o want my child to be interviewed.

Name of parent:	Telephone:	Address:

APPENDIX F:

Screening instrument for Researcher: i.e. FSIDDC

The Functional Screening Instrument for Depressive Disorders in Childhood

(Same as for teacher)
DSM IV PLUS diagnostic criteria for depressive disorders

Developmental Stage criteria for depressive disorders

1 - Doctor

CLINICAL INTERVIEW INSTRUMENT

(To be completed by the investigator by direct questioning of the child)

Respondent No.
Card No.

For office use only

I_1 [ ][ ][ ] 1-3
I_2 [1] 4

Regardless how good or bad the marks were before, has there been a decline in the learner's scholastic performance over the past twelve months? (Drop in average marks)

	5-10%	11-20	21-30	31-40%
1	2	3	4	5

No change scholastic performance — Severe change scholastic performance

F_1 [ ] 5

Have you also noticed a problem with learner concentration in class? (For example: Experience difficulty staying on task)

1	2	3	4	5

No problem with concentration — Severe problem with concentration

F_2 [ ] 6

Have you noticed a negligence in the doing of homework?
(Homework not done or partially done)

1	2	3	4	5

Homework done — Homework not done

F_3 [ ] 7

Have you noticed a decline in peer-group interaction? (Does he/she have many friends or is he/she lonely)?

1	2	3	4	5

Many friends — No friends

F_4 [ ] 8

Have you noticed a decline in interaction with authority (with teachers)? (Non-co-operative, negativistic, hostile)?

1	2	3	4	5

Co-operative — Non-co-operative

F_5 [ ] 9

Have you noticed that the learner is increasingly more absent from school?

1	2	3	4	5

No absence from school — Increasingly more absent from school

F_6 [ ] 10

Have you noticed a decline in selfcare? (Dirty, unwashed clothes and nails)?

1	2	3	4	5

Good selfcare — Selfcare severely neglected

F_7 [ ] 11

Have you noticed a decline in the interest of the child towards sport or hobbies?

1	2	3	4	5

No change — Stopped doing sport and hobbies

F_8 [ ] 12

2 – Doctor

WHICH OF THE FOLLOWING STRESSORS COULD BE OF RELEVANCE?

	1	2	For office use only		
Drug/alcohol abuse by learner	YES	NO	S_1		13
Physical abuse	YES	NO	S_2		14
Sexual abuse	YES	NO	S^3		15
Parental drug or alcohol abuse	YES	NO	S^4		16
Poor socio-economic situation	YES	NO	S^5		17
Parental mental illness	YES	NO	S^6		18
Peer-group rejection	YES	NO	S^7		19
Parental divorce	YES	NO	S^8		20
Family disruption	YES	NO	S^9		21
Major school changes	YES	NO	S^{10}		22

A CHECKLIST OF BEHAVIOUR ITEMS.

Please read carefully through this list and mark each of the relevant items concerning the behavior of the learner:

Behavior items	1	2			
Argues	YES	NO	C_1		23
Cruel to animals	YES	NO	C_2		24
Restless	YES	NO	C_3		25
Irritable mood	YES	NO	C_4		26
Forgetful	YES	NO	C_5		27
Disobedient	YES	NO	C_6		28
Destroys property	YES	NO	C_7		29
Seemed worried	YES	NO	C_8		30
Cries	YES	NO	C_9		31
Distract by outside stimuli	YES	NO	C_{10}		32
Fights	YES	NO	C_{11}		33
Sets fires	YES	NO	C_{12}		34
Shy	YES	NO	C_{13}		35
Feels alone	YES	NO	C_{14}		36
Careless mistakes	YES	NO	C_{15}		37
Stubborn	YES	NO	C_{16}		38
Steals at school	YES	NO	C_{17}		39
Headaches	YES	NO	C_{18}		40
Over tired	YES	NO	C_{19}		41
Fidgets with hands	YES	NO	C_{20}		42
Swears	YES	NO	C_{21}		43
Runs away	YES	NO	C_{22}		44
Stomach aches	YES	NO	C_{23}		45
Suicidal	YES	NO	C_{24}		46
Often leave seat	YES	NO	C_{25}		47
Tantrums	YES	NO	C_{26}		48
Truancy	YES	NO	C_{27}		49
Fears school	YES	NO	C_{28}		50
Unhappy	YES	NO	C_{29}		51
Difficulty awaiting turn	YES	NO	C_{30}		52
Threatens other	YES	NO	C_{31}		53
Alcohol/drugs	YES	NO	C_{32}		54
Fears to be alone	YES	NO	C_{33}		55
Withdrawn	YES	NO	C_{34}		56
Interrupts others	YES	NO	C_{35}		57

3 – Doctor

For office use only

Respondent No. D_1 [ ][ ][ ] 1-3
Card No. D_2 [1] 4

Clinical Interview Instrument: DSM-V-PLUS Criteria For Depressive Disorders

Referring to the child, which of the following symptoms and signs have been noticed by you the parent and/or you the child, over the past year or the past two weeks?:

1. Essential features of Depressive Disorders

	1	0			
1.1 Have you noticed a change in mood to a more irritable mood (irritability, angry outbursts)	YES	NO	D_3		5
1.2 Have you noticed a change in mood to a more depressed mood (sad, hopeless, discouraged, down in the dumps)?	YES	NO	D_4		6
1.3 Have you noticed feeling anxious?	YES	NO	D_5		7
1.4 Have you noticed a lost of interest in most activities like sport, hobbies, school (not caring)?	YES	NO	D_6		8
1.5 Have you noticed a markedly loss of pleasure in doing most of your activities (sport, hobbies, school)?	YES	NO	D_7		9
1.6 Current symptoms represent a change from previous functioning	YES	NO	D_8		10

2. Additional Symptoms

2.1 Have you noticed a weight loss or gain or decrease or increase in appetite, weight changes or failure to make expected weight gain ? Height ..... Weight	YES	NO	D_9		11
2.2 Have you noticed recurrent thoughts of death, recurrent suicide ideation without a plan, suicide attempt or specific plan, better off dead.	YES	NO	D_{10}		12
2.3 Psychomotor agitation or retardation nearly everyday (feelings of restlessness or being slowed down, can't sit still, slow speech or movements)	YES	NO	D_{11}		13
2.4 Insomnia: initial (falling asleep), middle (wake up, can't sleep), terminal or hypersomnia (prolonged sleep episodes at night, increased daytime sleep, oversleep)	YES	NO	D_{12}		14
2.5 Decrease energy, low or loss of energy; fatigue, tiredness, substantial effort needed to do normal tasks.	YES	NO	D_{13}		15
2.6 Feelings of worthlessness, inappropriate guilt, unrealistic negative evaluations of one's worth or guilty preoccupations or ruminations (brooding) over minor past feelings.	YES	NO	D_{14}		16
2.7. Diminished ability to concentrate, to think, to make decisions, easily distracted or complain about memory difficulties.	YES	NO	D_{15}		17
2.8 Feelings of hopelessness or pessimism about future	YES	NO	D_{16}		18
2.9 Worry	YES	NO	D_{17}		19
2.10. Being easily moved to tears	YES	NO	D_{18}		20
2.11 Hypervigilance	YES	NO	D_{19}		21
2.12 Irritability	YES	NO	D_{20}		22
2.13 Anticipating the worst	YES	NO	D_{21}		23

3. Referring to the above-mentioned symptoms, which of the following patterns apply to the child?:

3.1 Depressed/Irritable mood for most of the day, nearly everyday	YES	NO	D_{22}		24
3.2 Depressed/irritable mood for most of the day, more days than not.	YES	NO	D_{23}		25
3.3 Current depressive symptoms have been present during the same 2-week-period (duration 2 weeks).	YES	NO	D_{24}		26
3.4 Current depressive symptoms have been present for at least 1 year. (Duration at least 1 year)	YES	NO	D_{25}		27
3.5 The current clinical significant depressed mood and tearfulness developed within 3 months after a psychological stressor, and resolve within 6 months (Duration 3-6 months)	YES	NO	D_{26}		28

3.6 One or more 2-week-periods of depression (2-week-episodes)	YES	NO	D_{27}		29
3.7 Depressive periods last less than 2 weeks but at least 2 days (duration 2 days to <2weeks).	YES	NO	D_{28}		30
3.8 Depressive periods once a month for 12 consecutive months.	YES	NO	D_{29}		31
3.9 Dysphoric mood is present and recurrent and lasting for at least 1 month (Duration 1 month or longer)	YES	NO	D_{30}		32
3.10 Marked distress that is in excess of what would be expected after stressor.	YES	NO	D_{31}		33
4. Effect on functioning					
4.1 The symptoms cause clinically significant distress or impairment in school functioning, interpersonal (authority, home, peer, sibbe), hobbies, sports, functioning.	YES	NO	D_{32}		34
4.2 The symptoms cause temporary decrease in school and social functioning	YES	NO	D_{33}		35
5. Which Depressive disorder? (see computer use only form)					
5.1 Major Depressive Disorder (with/without psychosis)	YES	NO	D_{34}		36
5.2 Dysthymic Disorder	YES	NO	D_{35}		37
5.3 Minor Depressive Disorder	YES	NO	D_{36}		38
5.4 Recurrent Brief Depressive Disorder	YES	NO	D_{37}		39
5.5 Mixed Anxiety Depressive Disorder	YES	NO	D_{38}		40
5.6 Adjustment disorder with depressed mood	YES	NO	D_{39}		41
6. Exclusion criteria for Depressive Disorders					
6.1 The symptoms meet criteria for a mixed episode	YES	NO	D_{40}		42
6.2 The symptoms are due to the direct psycholocical effects of a substance (drug or medication) or a general medicical condition (hypothyroidism)	YES	NO	D_{41}		43
6.3 The symptoms are the result of Bereavement (loss of loved one)	YES	NO	D_{42}		44
6.4 During the past 1 year of the disturbance the child has been without the essential +3.1 and additional symptoms (2.1 + 2.4 + 2.5 + 2.6 + 2.8) for more then two months at a time.	YES	NO	D_{43}		45
6.5 During the past year of the disturbance, no chronic major depressive episode or major depressive disorder, (in patial remission) was present.	YES	NO	D_{44}		46
6.6 There has been a manic, mixed or hypomanic episode	YES	NO	D_{45}		47
6.7 The symptoms occur exclusively during the course of a chronic psychotic disorder.	YES	NO	D_{46}		48
6.8 There has been a Major Depressive Episode and criteria are met for Dysthymic Disorder.	YES	NO	D_{47}		49
6.9 Criteria have been met for Major Depressive Disorder, Dysthymic disorder, Panic disorder or Generalized anxiety disorder.	YES	NO	D_{48}		50
6.10 The stress-related disturbance meet criteria for another specific Axis I disorder or is a worsening of a pre-existing Axis I or Axis II disorder.	YES	NO	D_{49}		51

DEVELOPMENTAL STAGE AND AGE-RELATED DEPRESSIVE SYMPTOMS IN THE PRIMARY SCHOOL CHILD

1. Feeling unloved	YES	NO	D_{50}		52
2. Unhappy	YES	NO	D_{51}		53
3. Sad appearance	YES	NO	D_{52}		54
4. Withdrawn	YES	NO	D_{53}		55
5. Feelings of worthlessness	YES	NO	D_{54}		56
6. Poor self-esteem	YES	NO	D_{55}		57
7. Feeling persecuted	YES	NO	D_{56}		58
8. Feeling lonely	YES	NO	D_{57}		59
9. Worrying	YES	NO	D_{58}		60
10. Fear of school	YES	NO	D_{59}		61
11. Suicidal talk	YES	NO	D_{60}		62
12. Suspiciousness	YES	NO	D_{61}		63
13. Feelings of guilt and obsessions	YES	NO	D_{62}		64
14. Somatic complaints	YES	NO	D_{63}		65
15. Mood congruent auditory hallucinations	YES	NO	D_{64}		66

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