

Decision Trees for Use in Childhood Mental Disorders

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The third edition of *The Diagnostic and Statistical Manual of Mental Disorders* (DSM-III) (1) provides specific diagnostic categories for use in childhood mental disorders, even though these diagnoses are not limited to children. In addition, many of the diagnostic categories used for adults are considered appropriate for use in children. DSM-III instructs the clinician to diagnose children by first considering the section "Disorders First Evident in Infancy, Childhood, or Adolescence" before considering the disorders described elsewhere. However, this may lead to problems because some major diagnostic categories such as affective disorders and schizophrenia are not included in the childhood section. This may lead some clinicians to overlook a more accurate diagnosis outside the childhood section, i.e., using Overanxious Disorder instead of Major Depression.

In an attempt to help the clinician to understand the structure of the classification system, DSM-III contains a set of decision trees. Although these trees may be useful for adult diagnosis, they are not quite as useful in diagnosing children. The main problem is that children generally are brought to psychiatrists with behavioral complaints which are related by their parents. Children are more likely than adults to act out their feelings in non-specific ways. For example, a child's verbalization of worries to his parents may be a symptom of Separation Disorder, Major Depression, or Overanxious Disorder. Use of the decision trees in DSM-III would require the clinician to make an initial distinction between anxious mood and depressed mood. This is difficult with children, who often are unable to verbally label their feelings. Another factor complicating diagnosis in children is their greater imagination leading to the assessment of hallucinations or delusions which may not necessarily indicate psychosis.

This article proposes an alternate set of decision trees that may be helpful in the diagnosis of mental disorders in children and adolescents under the age of 18 years. Like the DSM-III decision trees, these trees are only approximations of the actual diagnostic criteria. Thus, they are not meant to replace the actual diagnostic criteria in DSM-III.

The following decision trees should be used in the order presented. Thus,

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the first tree would apply to any emotional or behavioral problem, the next to psychotic problems, then speech and language problems, and so on. Generally, use of an individual tree should result in only one diagnosis from that tree. Exceptions to this are tree branches labeled "continue," which indicates that the remainder of the tree should be examined even if a diagnosis was already indicated. All decision trees should be used in the diagnostic considerations regarding each patient because a patient may have more than one applicable diagnosis. Each diagnosis suggested by the trees should be confirmed by application of the actual DSM-III diagnostic criteria. Special care should be taken to apply the exclusionary criteria for age or other features as stated in DSM-III. The tree for Organic Brain Syndromes would be the same as published in DSM-III, so it will not be repeated here. Also, the possibility of psychosexual disorders should be remembered even though there is no tree for them here or in DSM-III.

The author's hope is that these decision trees may be useful for residents studying child psychiatry. In addition, this article should stimulate discussion among clinicians who have different ideas about child psychiatric diagnosis. Such ideas may be used to modify and improve this attempt to organize the diagnostic categories. If individual residents find the trees helpful, a study might eventually be done comparing diagnosis made with and without the decision trees. The diagnosis may be compared for accuracy with those obtained by the child psychiatry faculty. In the field trials for DSM-III, the overall kappa coefficients of agreement for phase one was .68 and phase two was .52. Spitzer considered kappa values of 0.7 and above to indicate "good agreement." Perhaps the use of either the decision trees presented here or a series of modified decision trees may improve the diagnostic agreement among clinicians.

CHILD MENTAL DISORDER DECISION TREES

1) *Diagnostic Considerations for All Symptoms*

Any behavioral or emotional symptom?

+yes

Symptoms under voluntary control?

+no +yes

+ Goal only to take patient

+ role?-----yes: Factitious dis. psych. sx.

+ +no

+ Goal obviously recognizable?-----yes: Malingering

+ +no

Known organic etiology (including neurologic and other physical disease as well as drug or alcohol ingestion?)-----yes: consider organic brain synd.

+no

consider other categories

2) *Psychosis Decision Tree*

Delusions, hallucinations, loose associations, or incoherence?

+yes

School, social, and self-care
functioning deterioration?

+no +yes

+ Delusions, hallucinations,

+ loose associations, or

+ incoherence?

+ Duration 6 mo.? -----yes: Schizophrenia

+ +no

+ Duration 2 wks.? -----yes: Schizophreniform disorder

+ +no

+ After significant stress? -----yes: Brief reactive psychosis

+ +no

Initially manic or depressed? -----yes: Affective dis. with psychosis

+no

Paranoid delusions without hallucinations? --yes: Paranoid disorder

+no

School, social, and self-care functioning

deterioration? -----yes: Atypical psychosis

+no

consider Anxiety, other categories

3) *Language Decision Tree*

Speech or language difficulties?

+yes

Delusions, hallucinations, loose

associations? -----yes: consider Psychosis

+no

Onset before age 2.5 yrs.?

+no +yes

+ Pervasive lack of

+ responsiveness to people? -----yes: Infantile autism

+

Gross impairment of sustained social

relationship before age 12 yrs.? -----yes: Childhood onset pervasive
development dis.

+no

Multiple distortions of development

involving language and social functioning? --yes: Atypical pervasive dev. dis.

+no

Magical thinking, inadequate rapport, odd

speech, suspiciousness? -----yes: Schizotypal personality

+no

Ability to comprehend spoken language, and to speak?

+ no + yes

+ Refuses to speak?-----yes: Elective mutism

+ + no

+ Disruption of rhythmic flow of speech?-----yes: Stuttering

+

IQ less than 70?-----yes: Mental retardation

+ no

Hearing impaired?-----yes: Deafness

+ no

Failure to develop consistent articulation with intact comprehension and expression? -yes: Develop. articulation dis.

+ no

Intact comprehension with failure of vocal expression? -----yes: Expressive develop. lang. dis.

+ no

Failure of comprehension and expression? --yes: Receptive develop. lang. dis.

4) Relationship Problem Decision Tree

Impaired or problematic relationships?

+ yes

Delusions, hallucinations, loose associations, incoherence?-----yes: consider Psychosis

+ no

Age less than 8 mo., apathetic after neglect, reverses with caretaking? -----yes: Reactive attach. dis. infancy

+ no

Pervasive social impairment with odd behavior, language, or speech deficits before age 12 yrs.?

+ no + yes

+ Onset before age 2.5 yrs.? ---- +----yes: Infantile autism

+ +----no: Pervasive developmental disorder

+

Speech or language problems with parents?-yes: consider language prob. tree

+ no

Depressed mood? -----yes: consider Depression

+ no

Magical thinking, illusions, odd speech, suspiciousness? -----yes: Schizotypal personality

+ no

Anxious with other people?

+ no + yes

+ Age greater than 2.5 yrs?-----no: assume normal stranger anxiety

- + + yes
- + Persistent excessive shrinking
- + from strangers, longer than 6 mo.? yes: Avoidant disorder
- + + no
- + Hypersensitive to rejection and
- + need for strong guarantee of
- + uncritical
- + acceptance?-----yes: Avoidant personality
- + + no
- + Anxious only when anticipating or
- + experiencing separation from
- + parent/caretaker?-----yes: Separation anxiety disorder
- + + no
- + Fears incapacitation outside home,
- + public places?-----yes: Agoraphobia
- + + no
- + Irrational, fear of scrutiny or
- + embarrassment? -----+----yes: Social phobia
- + +----no: consider Anxiety
- +
- Occurred after significant stress less than
- 3 mo. ago? -----yes: Adjustment reaction with withdrawal
- + no
- Avoidance of peer relationships? -----yes: Schizoid dis. of child./adol.
- + no
- No mental disorder in patient?
- + no + yes
- + Problem with parent? -----yes: Parent-child problem
- + + no
- + Problem with spouse? -----yes: Marital problem
- + + no
- + Problem with other family
- + member? -----+----yes: Other sp. family circumstances
- + +----no: Other interpersonal problem
- +
- Long term relationship impairment?-----no: consider other categories
- + yes
- Emotionally cold, aloof, close to less than
- 3 people? -----yes: Schizoid personality dis.
- + no
- Unstable relationships, angry outbursts?
- + no + yes
- + Impulsive, self-damaging? -----yes: Borderline personality dis.
- + + no
- + Grandiose self-importance,
- + exploitative? -----yes: Narcissistic personality dis.
- + + no
- + Overly dramatic, demanding?-----yes: Histrionic personality dis.

Perfectionistic, excessive devotion to productivity, rigid? -----yes: Compulsive personality dis.
 + no
 Passively allows others to assume own responsibility, lacks self-confidence?-----yes: Dependent personality dis.
 + no
 + -----Other, mixed or atyp. pers. dis.

5) *Anxiety and Overactivity Decision Tree*

Anxious or overactive?
 + yes
 Delusions, hallucinations, or thought disorder? -----yes: consider Psychosis
 + no
 Anxiety in reaction to identifiable stressor within 3 mo? -----yes: Adjust. dis. with anxious mood
 + no
 Short attention span, impulsive, and hyperactive?-----yes: Attention deficit disorder
 + no
 Anxiety when anticipating or experiencing separation from parents or caretaker?-----yes: Separation anxiety disorder
 + no
 Persistent shrinking from strangers? -----yes: Avoidant disorder
 + no
 Persistent generalized anxiety? -----yes: Overanxious disorder
 + no
 Fears incapacitation outside home or public places?
 + no + yes
 + Panic attacks?----- +----yes: Agoraphobia with panic attacks
 + +----no: Agoraphobia w/o panic attacks
 +
 Excessive fears of scrutiny or embarrassment? -----yes: Social phobia
 + no
 Fear of single object or situation?-----yes: Simple phobia
 + no
 Recurrent persistent ego-dystonic thoughts or behaviors?-----yes: Obsessive compulsive disorder
 + no
 Reexperiencing a significant trauma with detachment and diminished outside interests? -----yes: Post-traumatic stress syndrome
 + no
 Anxiety about physical illness?-----yes: consider physical illness tree
 + no

- Distress regarding identity issues? -----yes: Identity disorder
 + no
- Discrete panic attacks? -----yes: Panic disorder
 + no
- Overactive without anxiety? -----no: Consider other categories, including
 Generalized Anxiety Disorder
 + yes
- More talkative, decreased sleep,
 overoptimism? -----no: consider other categories
 + yes
- Grandiosity or flight of ideas ----- + ----yes: Manic psychosis
 + ----no: Hypomanic

6) *Depression and Hypoactivity Decision Tree*

- Depressed or hypoactive?
 + yes
- Dysphoric mood, appetite change, sleep
 change, slowed thinking, loss of pleasure
 for greater than 2 wks.? -----yes: Major depression
 + no
- + Hallucinations, delusions? ---- + ----no: Major depression
 + ----yes: Maj. depression with psychotic features
 +
- Hallucinations, delusions? -----yes: consider Psychosis
 + no
- Reexperiencing significant trauma,
 detachment, hyperalert? -----yes: Post traumatic stress dis.
 + no
- Normal reaction to death of loved one? -----yes: Uncomplicated bereavement
 + no
- Reaction to identifiable stressor within
 3 mo.? -----yes: Adjust. dis. with depression
 + no
- Periods of hypomania and depression for
 greater than 2 yrs.? -----yes: Cyclothymic disorder
 + no
 + -----no: Atypical depression

7) *Learning Difficulties Decision Tree*

- Learning difficulties?
 + yes
- Neurologic exam reveals specific
 neurologic disorder? -----yes: Axis III neurologic diagnosis
 + continue
- Delusions, hallucinations, loose associations,
 or incoherence? -----yes: consider Psychosis
 + no

- IQ less than 70?-----yes: Mental retardation
+no
- Reading more than 1 yr. behind that
suggested by IQ?-----yes: Developmental reading dis.
+no
- Arithmetic more than 1 yr. behind that
suggested by IQ?-----yes: Developmental arithmetic dis.
+no
- Short attention, impulsivity, hyperactivity?--yes: Attention deficit disorder with
hyperactivity
+no
- Disobedient or aggressive? -----yes: consider disobedience tree
+no
- Depression, anxiety, or social impairment?--yes: consider appropriate category
+no
- Learning problem in reaction to
identifiable stress within 3 mo.? -----yes: Adjustment disorder with
academic inhibitions
+no
- Distress about identity issues? -----yes: Identity disorder
+no
- IQ between 71 and 84? ----- + ----yes: Borderline intelligence
+ ----no: Academic problem

8) *Disobedience Decision Tree*

- Disobedience, impulsivity, or aggression?
+yes
- Delusions, hallucinations, loose associations,
or incoherence?-----yes: consider Psychosis
+no
- IQ less than 70?-----yes: Mental retardation
+no
- Short attention, impulsivity, hyperactivity?--yes: Attention deficit disorder
+no
- Violation of rights of others outside of soci-
etal norms?
+yes +no
- + Impulsive gambling only?-----yes: Pathological gambling
+ +no
- + Impulsivity in potentially
self-damaging acts, unstable
relationships, intense anger,
affective instability?-----yes: Borderline personality disorder
+ +no
- + Disobedient, negativistic,
provocative opposition to

- + authority? -----yes: Oppositional disorder
- + +no
- + Procrastination, intentional
- + inefficiency, stubbornness? -----yes: Passive-aggressive pers. dis.
- +
 - Reaction to identifiable stressor within
 - 3 mo.?
 - +no +yes
 - + Includes disturbance of
 - + emotions? -----+----yes: Adj. dis. with mixed emotions and con-
 - duct
 - + +----no: Adj. dis. with disturbance of conduct
 - +
- Repetitive acts?
 - +no +yes
 - + Fire setting without gain; only?-----yes: Pyromania
 - + +no
 - + Stealing without gain; only?-----yes: Kleptomania
 - + +no
 - + Persistent violations of rights of
 - + others? -----yes: Conduct disorder
 - +
 - Otherwise normal behavior with episodes of
 - loss of control of aggression resulting in
 - serious assault or destruction?
 - +no +yes
 - + More than 1 episode?-----+----yes: Intermittent explosive dis.
 - + +----no: Isolated explosive disorder
 - +
 - Isolated antisocial acts? -----yes: Antisocial behavior

9) *Personality and Memory Change Decision Tree*

- Personality change or memory loss?
 - +yes
 - Delusions, hallucinations, loose associations,
 - or incoherence?-----yes: consider Psychosis
 - +no
 - More than 1 distinct personality, each
 - dominant at particular times? -----yes: Multiple personality
 - +no
 - Sudden inability to recall the past; travel,
 - and new identity assumed? -----yes: Psychogenic fugue
 - +no
 - Sudden inability to recall extensive personal
 - information? -----yes: Psychogenic amnesia
 - +no
 - Depersonalization episodes (feelings of

unreality with impairment of functioning)?--yes: Depersonalization disorder
 +no
 consider other categories, including depressive and anxiety disorders

10) *Eating Problem Decision Tree*

Eating problem?

+yes

Psychosis? -----yes: consider Psychosis

+no

Change in appetite and weight in the presence of depression?-----yes: consider Depression

+no

Repeated eating of nonnutritive substance? -yes: Pica

+continue

Weight loss?

+no +yes

+ Physical cause? -----yes: Physical illness

+ +no

+ Repeated regurgitation without

+ nausea in infancy?-----yes: Rumination dis. of infancy

+ +no

+ Binge eating? -----yes: Bulimia

+ +no

+ 25% weight loss, feeling fat,

+ refusal to maintain weight? -----yes: Anorexia nervosa

+ +no

+ -----Atypical eating disorder

11) *Sleep Problem Decision Tree*

Sleep problems?

+yes

Repeated problems 30-200 min. after sleep onset?

+no +yes

+ Walking during sleep? -----yes: Sleepwalking

+ +no

+ Abrupt awakening with anxiety

+ and autonomic arousal? -----yes: Sleep terror

+ +no

consider other categories, including depressive and anxiety disorders

12) *Physical Complaints Decision Tree*

Irrational complaints of physical symptoms?

+yes

Symptom under voluntary control?

+no +yes

+ Is goal to assume patient role? -----no: Malingering

+ +yes

+ Multiple hospitalizations?-----+----yes: Chronic factitious phys. sx.

+ +----no: Atypical factitious phys. sx.

+

Actual physical condition worsened by

psychologic factors?-----yes: Psychol. affect physical cond.

+no

Severe prolonged pain not physical or in

excess of physical? -----yes: Psychogenic pain

+no

Alteration in physical functioning

suggesting physical disorder?-----yes: Conversion disorder

+no

Seeking medical attention for multiple

symptoms for several years?-----yes: Somatization disorder

+no

Fearful inappropriate belief of having

serious disease?-----+----yes: Hypochondriasis

+----no: Atypical somatization dis.

13) *Other Physical Problems Decision Tree*

Other physical problems?

+yes

Repeated involuntary urine voiding?-----yes: Enuresis

+continue

Repeated passage of feces into inappropriate

place? -----yes: Encopresis

+continue

Recurrent repetitive, involuntary, rapid,

purposeless, movements? -----yes: Tic disorders

+continue

Repetitive voluntary movements? -----yes: Atyp. stereotyped movement dis.

REFERENCES

1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. Third edition. 1980.