

Diagnostic Predictive Scales (DPS) Twin Cities Pilot Project

Presented by:

The Center for the Advancement of Children's Mental Health

Through the collaboration of:

The REACH Institute

and

Prairie St. John's

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Purpose of the Diagnostic Predictive Scales Pilot Project

The purpose of this project was to determine the feasibility of using Diagnostic Predictive Scales (DPS) in Twin Cities area schools to efficiently identify youth with possible mental health disorders and help refer them to appropriate levels of care or treatment. A successful pilot project will pave the way for long-term, ongoing implementation and support of effective tools to help school counselors with early identification of mental illness.

The prevalence of undiagnosed or untreated mental illness in the United States is startling. The World Health Organization approximated that 450 million people worldwide suffer from a psychiatric disorder (2001). A separate Harvard study found that nearly 25% of the world's population will develop a mental or behavioral disorder sometime in their life (Murray & Lopez 1996). Shockingly, studies have shown that only 25%- 35% of children and adolescents suffering from a psychiatric disorder will receive treatment (Burns, Costello, Angold, et al., 1995). There are many Americans who suffer from mental illness that, due to delay or lack of treatment, have long-term detrimental effects on their functioning. Research conducted at the National Institute of Mental Health emphasizes the importance of early identification and intervention:

“Researchers supported by the National Institute of Mental Health (NIMH) have found that half of all lifetime cases of mental illness begin by age 14, and that despite effective treatments, there are long delays — sometimes decades — between first onset of symptoms and when people seek and receive treatment. The study also reveals that an untreated mental disorder can lead to a more severe,

more difficult to treat illness, and to the development of co-occurring mental illnesses” (2005).

Past epidemiological research suggests that early identification of the onset of mental illness is crucial in preventing unnecessary worsening symptoms that could ultimately result in suicide.

Staff at Prairie St. John’s and the REACH Institute wanted to determine the feasibility of implementing a valid tool for early identification of mental illness among students’ grades 5-12 in the Twin Cities metropolitan area. This tool will enhance the effectiveness of school counselors and diversify means by which staff can investigate symptoms of mental illness. The use of the DPS can decrease the time and intensity an individual can endure before being referred to a professional. The DPS is an efficient and cost effective method of identifying mental illness.

The REACH Institute is dedicated to helping communities and professionals have access to proven safe and innovative methods that foster childrens' emotional and behavioral health. The REACH Institute teamed up with Prairie St. John’s to help accelerate the acceptance of the DPS in the Twin Cities metropolitan area. The DPS has proven to be a valid and useful method of identifying early onset of mental illness in past epidemiological research. The DPS was chosen as an ideal tool to help school counselors identify children with mental illness and help them receive further evaluation and treatment due to its accuracy and simplicity.

The Metropolitan Council estimated in 2006 that the Twin Cities seven-county area was home to nearly 2.82 million Minnesotans. Nearly 24.3% or 684,000 residents of

Minnesota are under the age of 18. The first nationally representative survey in the U.S. was the National Comorbidity Survey (NCS) which fielded from 1990 – 1992 and estimated that 1 out of every 5 Americans will suffer from mental illness in a given year (Kessler). The data collected during the NCS is congruent with data collected during similar epidemiological research. Research data such as that gathered in the NCS show the importance of early identification and intervention on mental illness in youth. School staff is seen as being on the “front lines” and have contact with a majority of Twin Cities youth. Utilizing existing trained staff and equipping them with the innovative tools necessary to help identify and treat mental illness is regarded as efficient, powerful and logical. The DPS can feasibly increase the number of students who can accurately be checked for possibly suffering from a psychiatric or substance abuse disorder. This tool will also arm school counselors with accurate and objective information to present to parents in helping to support the student being referred to seek care or treatment from a professional.

Many school districts in the Twin Cities seven-county metro area are suffering do to a shortage of state and federal funding as well as failing levys and referendums. At one point a passing referendum was considered a luxury, which a district could use to enhance the appeal and quality of educational services for its residents. Now it seems as though they are vital to the continuation of essential school programs. Jim Bierma, President of the American School Counselors Association, says that Minnesota currently has a ratio of one school counselor to every 800 students. This ranks Minnesota second to last out of the 50 states (2007). The national average in 2007 was one counselor to every 488 students, according to Bierma.

Explanation of Pilot Project Process

The REACH Institute is supporting the DPS pilot project by providing the DPS tool itself and submitting grant applications for future funding. Prairie St. John's is supporting the project by providing general oversight by a Project Director and implementation by a Project Manager. The Project Manager at Prairie St John's presented the DPS to three metro-area school districts that all agreed to use it for the purpose of this pilot project. These school districts administered the DPS to 34 students during the 2007-2008 school year. School counselors, social workers and psychologists ("counselors" hereafter) were trained in the administration and interpretation of the DPS and given technical and clinical support throughout the duration of the project. School staff identified which students were in need of the DPS by observing naturalistic indicators (behaviors or symptoms). Counselors were then asked to submit basic, non-identifying report information along with a brief questionnaire to the Project Manager (Appendix A). The raw data submitted has been analyzed and is presented in this report.

Diagnostic Predictive Scales

The Diagnostic Predictive Scales was developed by Christopher Lucas MD, MPH at the Center for the Advancement of Children's Mental Health at Columbia University in 2003. Diagnostic Predictive Scales has also been referred to as the DISC Predictive Scales, from the program in which it derived. The DPS is a computerized tool that uses audio to read questions to a student who can then respond by using the keyboard or a mouse. The DPS can be tailored to subjects' specific needs by testing any of the 17 modules the administrator chooses. Each module contains anywhere from 3-15 questions

including rule-out criteria and follow-up questions based upon certain flagged responses. The items in the DPS derive from a larger set of questions contained in the DISC-2.3 (Diagnostic Interview Schedule for Children) and DSM-III-R (Diagnostic and Statistical Manual). The DPS uses the most sensitive and specific items from the DISC-2.3 to determine whether or not the informant responds consistently with criteria that would determine if symptoms are “present, possible or absent” for each module chosen. The DPS will instantly produce a final report containing all of the raw data and a complete analysis of symptoms consistent with a DSM diagnosis. The report will also flag crucial information such as reports of suicidal ideation, history of suicide attempts, and whether or not the informant has seen a professional for help.

The benefits of using the DPS are the efficiency and accuracy of the tool. The results of the DPS will let staff know the probability that a student may meet diagnostic criteria for a mental disorder. The DPS will accurately determine the probability of a mental health disorder while sparing the student extensive and exhausting diagnostic inquiry that is rarely available in the school setting. Items in the interview are non-intrusive and only require responses from the student. The calm tone of the computer based interview voice provides comfort and a sense of anonymity. The DPS asks minimal demographic questions, which makes it non-intrusive. The tool will screen for potential problems with vision, hearing and dental as well. The DPS also has the ability to analyze the students reported level and symptomology of impairment. The level of impairment correlates to how the student feels their symptoms are affecting their daily life. The DPS has diagnostic limitations that do not allow it to identify PDD, MR, LD and personality disorders.

Protocol for DPS Administration

Step 1: School counselor identifies student who can benefit from the DPS by observing naturalistic indicators.

Step 2: School counselor gains permission from parent or legal guardian by procedure established by the school district (Appendix B).

Step 3: School counselor begins DPS by choosing specific modules to be administered.

Note: When applicable, the counselor must pre-determine how to handle data regarding substance abuse and inform the student of that information.

Step 4: Student begins to take the DPS. Student notifies counselor when finished.

Step 5: School counselor carefully reads report and notifies parent or legal guardian of results. The school counselor will then refer to appropriate care and treatment.

Project Results

School counselors were asked to complete a brief questionnaire upon the administration of the DPS. They were then asked to submit a questionnaire for each test and the first page of the report to the Project Manager. Each DPS report let researchers know the frequency in which certain mental health disorders were being identified. This also included valuable data on reports of suicidal ideation or past suicide attempts. We were also able to tell whether or not students were receiving professional help for any symptoms they reported during the DPS interview or otherwise. The questionnaire allowed researchers to determine whether or not the data on the DPS reports was effective in helping students get referred to treatment when necessary.

Mental Health Disorders Identified

For this pilot project nearly 96% of the participants reported symptoms consistent with that of a diagnosable disorder. Only 30% of the students scoring ‘probable’ for having a mental health disorder were currently seeing a professional. Bear in mind that the students chosen to use the DPS were determined using naturalistic indicators, and therefore were suspect of a disorder prior to testing. The specific modules that are chosen to individualize each administration of the DPS. A participant can have “present” symptoms for a multitude of diagnosis that are chosen. Chart 1 shows the percentage of DPS reports that show “present” symptoms for each probable diagnosis listed: depression, generalized anxiety disorder (GAD), oppositional defiant disorder (ODD), mania, separation anxiety, specific phobia, post traumatic stress disorder (PTSD) and marijuana abuse.

Mental Health Disorders Identified

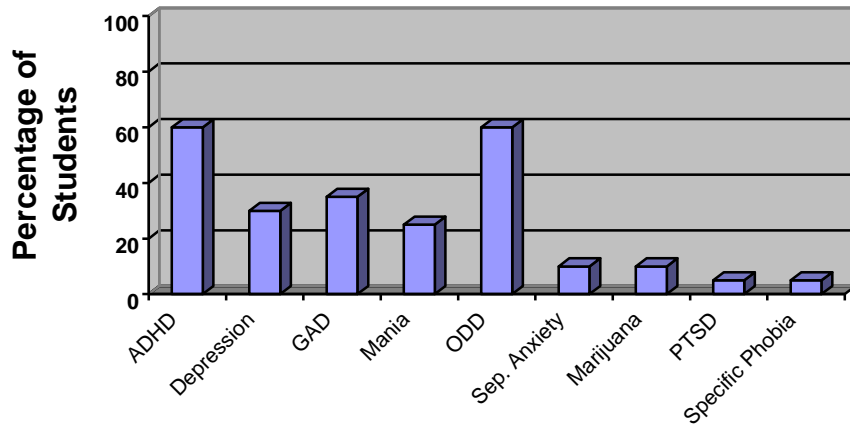


Chart 1

Though the diagnoses identified are congruent with behaviors and symptoms observed by staff members, the results are seemingly different than similar past studies. This is due to the small sample chosen and the programs in which the school counselors work. One participating school program hosts students who have been suspended from their home school and are offered a mental health screen through the Pupil Fair Dismissal Act (MN statute section 121A.40). This resulted in a high percentage of students that reported behavior and conduct problems and oppositional behavior.

Reported levels of Significant Impairment

Participants of the DPS respond to a set of questions that monitor ones reported level of impairment among three different domains: at home, at school, and with peers. This pilot project shows that 50% of the student participants reported a level of impairment. Only 30% of the students reporting levels of impairment are currently seeing a professional. School counselors are able to review this data and help these students get

the help they need to feel better and less impaired. All of the students reporting impairment met criteria for a probable diagnosable mental disorder.

Suicidal Ideation and Past Attempts

This research identified that 70% of students scoring probable for having a mental health disorder were not receiving treatment. It was also found that 40% of students reporting suicidal ideation were not receiving treatment. **Early identification of mental illness can be the most predictive factor for future suicide attempts.** Illnesses such as depression, anxiety and post traumatic stress disorder (PTSD) place an individual at high risk for suicidal tendencies if not identified and treated. Effective screening and treatments are available for all of the aforementioned illnesses. In this pilot project, it was discovered that 21% of participants reported suicidal ideation and 5% reported a past suicide attempt. See Chart 2 below.

Percentage of Students Reporting Suicidal Ideation or past Suicide Attempts

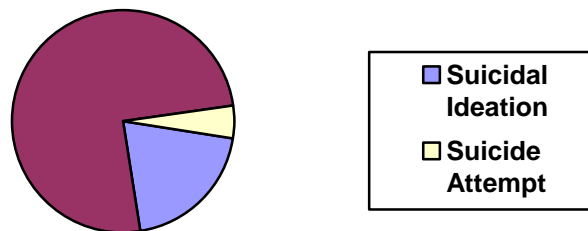


Chart 2

This data can be alarming knowing that without a valid tool, these students may not have been identified. With the support and guidance of parents and the school counselor, this individual is now being treated for their symptoms. According to a study

done by Lucas et al on screening instruments in 1996, nearly 50% of teens found to have made a suicide attempt were not in treatment. Nearly 74% of teens identified with thoughts of suicide were not in treatment (Lucas, 1996).

This pilot project showed a strong correlation between symptoms of depression or anxiety and suicidal tendencies. All of the students who reported suicidal ideation or past attempts were also shown to have a probable diagnosis of *both depression and anxiety*. Thirty percent of the students who took the DPS reported symptoms of depression. Chart 3 shows that 50% of the students probable for depression also reported suicidal tendencies. Thirty-five percent of the students who took the DPS reported symptoms of generalized anxiety disorder and exactly 40% of those students also reported suicidal tendencies as depicted in Chart 4.

Students Probable for Depression Reporting Suicidal Tendencies

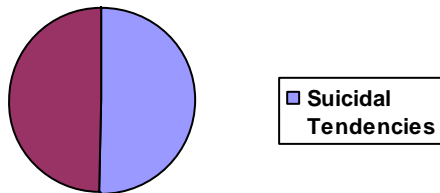


Chart 3

Students Probable for GAD Reporting Suicidal Tendencies

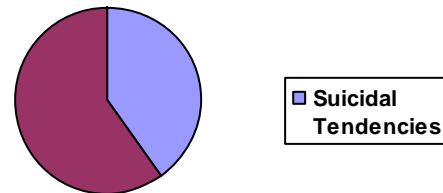


Chart 4

This shows that those suffering from symptoms of depression and GAD will dramatically increase ones susceptibility to suicidal ideation or possible attempts. Attention Deficit Hyperactivity Disorder was another symptom set that showed 40% of students reporting probably symptoms also reported suicidal tendencies. This could also be due to the impulsivity of the disorder and tendency to act before thinking rationally.

Other Health Problems

Further DPS training was done for the purpose of attending to the “other health problems” data set. Some school nurses have also been trained in the interpretation of the DPS reports and are familiar with its use. School nurses are then able to provide further assessment and recommendation when needed upon discovering other health problems. This study discovered 4 students who are having problems with their vision, hearing, or teeth. School counselors were then able to refer this information to the parents, and school nurse if necessary. School nurses and other qualified staff have the ability to provide thorough follow-up with this information and help parents determine whether or not a medical appointment is necessary.

The Effectiveness of Using the DPS in Schools

Nearly 96% of the DPS cases reported symptoms concurrent with a mental health diagnosis from the Diagnostic Statistical Manual. This suggests that these students have a high probability that they would qualify for a mental health diagnosis according to the most recent Diagnostic and Statistical Manual (DSM-IV). School counselors reviewed the results with the student's parent or legal guardian in each case to determine if further evaluation or treatment was needed. Results show that 70% of students scoring probable for mental illness were not in treatment (see Chart 5). More shockingly, 40% of those reporting suicidal ideation were not in treatment (see Chart 6).

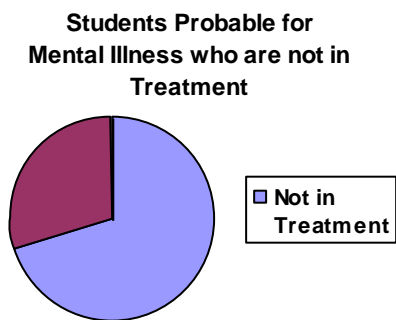


Chart 5

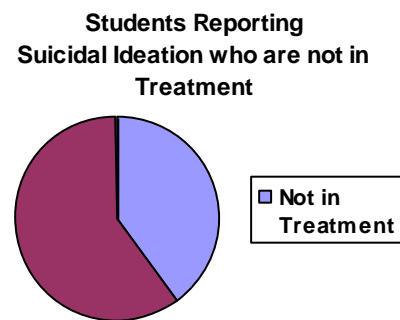


Chart 6

Counselors have reported that further evaluation by a mental health professional was recommended in 68% of the probable cases. Counselors agreed unanimously that the DPS was a decisive factor in determining whether or not to recommend further evaluation. Based upon recommendation, parents agreed to make an appointment with a mental health professional in 40% of the probable cases. School counselors have said that in 37% of these cases the DPS results were instrumental in persuading parents to agree to seek further evaluation.

School counselors reported that the DPS has been an effective and efficient way to identify students who may be suffering from mental illness and help them find the resources they need. They also liked the quick and easy administration of the DPS and the computation of the final report. The DPS arms school counselors with valid and objective clinical information that can be easily administered and tailored to individual students.

The Feasibility of Using the DPS in Schools/Conclusion

The results of this pilot project suggest that it is feasible to implement the DPS in Twin Cities area schools as a means of ongoing, long-term early identification tool for school counselors. All of the participating counselors agreed that this tool was helpful in identifying students with mental health disorders during the project. The use of the DPS was a decisive factor in assisting students receive help and support that otherwise may not have been put in place. School personnel reported liking the accuracy and objectiveness of the DPS when presenting results to parents.

Participating school counselors have reported that the DPS is an efficient, accurate and feasible tool to use with students on a daily basis. It is clear that the implementation of the DPS in Twin Cities schools have already made a significant impact in helping students. In three unique cases, school counselors reported that the results of the DPS with some students were seemingly inaccurate. On two occasions this was due to an English language barrier (DPS is only offered in English and Spanish). And in the third case it was suspected that the student was being dishonest. Through the course of this pilot project, the concept of using the DPS in public schools gained momentum at an exponential rate. The project began with 3 local school districts interested in participating and by the time the project was concluded there was expressed interest from 8 other school districts spanning as far as 200 miles from the Twin Cities metro area. The status of this pilot project was presented at the Midwest Care and Treatment Conference on March 11, 2008 in Brainerd, Minnesota. The results were also presented at a Poster Session during Minnesota Association for Children's Mental Health annual conference on April 28, 2008 in Duluth, Minnesota.

Appendix A

DPS Administration Questionnaire

	Yes	No
1. Did this administration identify mental health issues?		
If yes to 1:		
b. Did you contact the parents to discuss potential mental health issues?		
c. Did you recommend further evaluation by a health professional?		
If yes to 1.c:		
Do you think that the DPS results were a decisive factor when deciding to recommend further evaluation?		
d. Based on the recommendation, did the parents agree to make an appointment with a health professional?		
If yes to 1.d:		
Do you think that citing the DPS results made help persuade the parents to agree to seek further evaluation?		

Appendix B

Date _____

Dear Parent or Guardian,

We are taking a proactive approach to help identify any students in need of special support. Our district is currently using a tool called the Diagnostic Predictive Scales (DPS) to help identify children who may suffer from a variety of mental health issues. The DPS is a computer-based program that uses audio to ask children a variety of non-intrusive questions about their feelings and possible symptoms. The DPS can be customized for each student so the questions they are asked pertain to them specifically.

The use of the Diagnostic Predictive Scales has been proven to identify early warning signs of mental illness and prevent worsening symptoms. School staff, parents and professionals have been able to use the information from the DPS results to better understand a child's mental health. The results of the DPS will be explained to you by your child's counselor if you agree to the administration of the DPS. Please let us know if you have any questions.

Sincerely,

Staff

My child _____ has permission to take the Diagnostic Predictive Scales.

Parent signature _____

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