# Computer-Assisted Methods to Screen for Mental Health and Addictive Disorders

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There are approximately 40 million children in the U.S. who are 11 to 17 years old. It is estimated that 8 million of these children have a diagnosable mental health problem or addictive disorder. At the same time there is a scarcity of qualified mental health professionals who can screen and treat these children. As many as 5.6 million troubled children are not being identified or receiving help. Historically, mental health services are not a priority in the United States. Adequate funding for screening and treatment activities is not available from Federal or State sources or from private insurance. The estimated cost to thoroughly screen adolescents in America is between two and four billion dollars. There are not enough mental health professionals to conduct qualified screening.

Because of the scarcity of resources and qualified professionals there has been a great deal of research and professional interest since the 1990's in the use of computers to screen for mental health problems. These approaches, by and large, hold promise as efficient means to screen youth for mental and addictive disorders. There is also a wealth of developing research in person-computer interaction and use of computers in behavioral and psychological assessment.

Paperny and Hedburg (1999) demonstrated that a computer can do a better job screening a person for health related issues and that computer assisted patient interviews can be less expensive and more reliable than face-to-face interviews.

There are two methods by which children can be screened using a computer system. The first method involves using computer systems designed to interview the child. This approach is referred to here as a computer-assisted child interview (CACI). The second method involves the use of a computer system designed to interview the parents or reliable observers of children. This system is referred to as a computer-assisted parent interview (CAPI).

## Computer-Assisted Child Interviews (CACI)

In general, cooperative children are likely to answer questions administered by a computer and more willingly than those administered by a person. A computer-assisted child interview (CACI) is a self-report measure. Westen & Weinberger (2004) argue that self-report measures are useful provided the patient has adequate self-observation skill, clear memories and can accurately express their beliefs. They point out that self-observation is also subject to errors. The mind is sufficiently complex that it is difficult to minimize literacy and vocabulary requirements that are necessary to make diagnostic and predictive judgments. Obtaining information necessary to identify subtle mental health problems in children may not be possible through self-report because it is difficult to capture complex issues with questions that are simple enough for children to understand. As self-report questions become fewer and more simple, the range of potential corresponding disorders must become broad and general. CACI screenings generate many “false positives” for problems that must be sorted out by clinicians.

CACI follows a general procedure that involves interview, information processing and follow-up. In order to use a computer assisted child interview, a child would normally sit in front of a computer, then read (or read and listen to) questions asked by the computer. The child responds to questions by clicking on the appropriate answer. When finished, the computer then processes the responses, generates a diagnosis or impression, and identifies any risks such as those of violence or suicide. The machine generated report is given to the sponsoring school, medical clinic or community mental health center for follow-up. The results are written for professional audiences and are not appropriate for children or parents to read. Professionals would normally conduct further evaluation of the child in question based on this report and then meet with parents. The process may be sponsored or administered by a medical clinic or a school in collaboration with mental health professionals or a community mental health agency.

CACI validity is based on the assumption that a child will be accurate and cooperative. If they aren’t, then the whole process is subject to bias and errors. The CACI approach relies on the child as the primary source of information and gives the responsibility for assessment and follow-up to physicians, schools, mental health professionals and public programs. Parents may be involved in the process to give

permission for the interview or only after a determination has been made that there is a mental health disorder or high risk problem. In some cases, the child may be involved in further evaluation or intervention before the parents are even aware there is a "concern" or a "problem."

Computer-assisted child interviews have several logistical and professional challenges. Child interview approaches usually require parental cooperation or consent, scheduled appointments, dedicated computers and professionals, a facility to interview children, a follow-up procedure, a referral procedure, and most of all, children who will be honest, accurate and cooperative.

There are a number of advantages when using CACI. The greatest advantage is the ability of this approach to gather information directly from the child. This can be a particular advantage when parents are not involved with their child or they are not able to provide reliable information about their child's history and behavior. The CACI is a very powerful intervention when children want help and parents might prevent public authorities from providing mental health services.

A weakness when using CACI pertains to matters of informed consent, which as a legal and ethical matter, requires patients and subjects considering a diagnostic procedure, or treatment, to understand the risks and benefits so they can make an informed decision. The point at which children are deemed qualified to appreciate the risk is defined by state laws. In order for CACI to be used on every child, legislation supporting CACI must be enacted that will by-pass parental consent and involvement.

All treatment or diagnostic procedures carry a risk for harm. Such harm includes social stigma, self-harm and potential limitations on life, liberty and pursuit of happiness. As a matter of law, any professional or agency that does not provide informed consent, or limits individual rights without due process, may be criminally responsible or civilly liable for any subsequent harm.

## Computer-Assisted Parent Interviews (CAPI)

Parents are usually not trained or qualified to diagnose and treat their children. Training all parents to identify and diagnose mental health problems is problematic and would be unrealistic. Instead of training parents to replace clinicians, parents can serve as valuable and reliable sources of information. A computer-assisted parent interview (CAPI) gathers information from parents who serve as informants.

CAPI validity is based on the assumption that the report of parents (not the child) will be comprehensive, accurate and cooperative. If they are not, the whole process is subject to bias and errors. The CAPI approach relies on one or more parents as the primary source of information and places responsibility for follow-up on the parents. Multi-informant procedures provide a greater measure of reliability, confidence in the results, validity and utility. In order to use this approach, parents must be present and involved in their child's life with accurate information regarding their child's history, behavior and feelings.

There are a number of advantages and dis-advantages that are apparent when using a CAPI.

*Parent Involvement*. CAPI is designed to involve parents in a computer-assisted interview process. The process simultaneously gathers information and serves as a first step toward intervention. Involvement can lead to parental investment in both the process and subsequent decisions. Involvement can increase awareness, observation and interaction between parents and their child. Parent interaction concerning their individual responses to questions can increase communication about their child when two parents participate in the same interview process. Differences of opinion and possible conflict may surface. The weakness in this approach is that some parents do not want to be involved in this process either because they wish to avoid conflict, don't care, don't believe it is important or do not trust the process. Clearly, parents who are not involved with their child, or do not want to participate in their care, can undermine this process.

*Parent Education.* A CAPI approach exposes parents to questions regarding their child that they may have never considered. Participation in a CAPI can educate and sensitize people to potential behavior and emotional states that can inform their parenting decisions. Parents who care about their child can learn more about specific behaviors and historical concerns that can help them be more effective parents. CAPI results are individualized for parents and the child. In some cases, parents are supported to know their child better, pay closer attention, learn more and talk more meaningfully with their child. Parents frequently talk more with each other when they realize they do not know the answer to important questions or differ in their responses.

*Parental Empowerment.* A CAPI is designed get parents involved, increase awareness, provide information and educate. In effect, this approach empowers and puts parents in charge of subsequent decisions. Parents who are knowledgeable and credible are in a better position to advocate, make appropriate choices and participate in treatment and treatment planning. Rather than relinquishing parental responsibility for issues and treatment, parents become more involved.

## Summary

Children can provide reliable information for screening purposes if they have adequate self-observation skills, clear memories and the ability to recognize and articulate their behavior and history. Computer-assisted child interviews (CACI) can be used to screen children who volunteer, can make an informed decision and those who have parental support and confidence in the process.

At the same time, many parents can be reliable informants. They have a wide observational base, can see what their children are doing, and they have information about how their children think and feel. Involved parents can provide accurate observation and a detailed history of their child.

Parents may not understand or appreciate the full significance of what they see and know, but their observations can be organized by the CAPI program. A CAPI approach can be used to screen children who are not willing to participate in the process and in situations where parents do not want their child screened using a CACI approach.

Both a CACI and CAPI can be used to educate parents and provide information. Parents must decide what information they want their child to be given. A decision to provide screening results to a child, must consider the capacities of the child to understand and the risk of harm.

A CACI works well when the follow-up process takes problematic results directly to mental health professionals. A CACI works best as a clinic-based or school-based screening tool. In most cases, children cannot appreciate or understand the implications of information prepared for mental health professionals or parents. Results must therefore go to professionals or parents, especially when the implication and risks identified in the results are more severe. To support CACI many resources including access to a mental health professional are necessary.

A CAPI works well as a home-based screening tool. Parents can appreciate, understand and deal with a higher degree complexity and identified risk better than children. But regardless of their education level and knowledge of their children, parents have a responsibility and right to screen their child, learn from that experience, consider their options and to explore their next step. Parents must also have the option to seek consultation with a health or mental health care professional, school professional or qualified advisor of their choice.

Both CAPI and CACI approaches have merit in identifying children with mental health and addictive behavior problems. The approach used should depend on the child, their parents, the availability of professionals and funds to support the screening process.

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