The revised Children's Knowledge of Abuse Questionnaire: Development of a measure of children's understanding of sexual abuse prevention concepts

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The Children's Knowledge of Abuse Questionnaire (CKAQ) was designed to evaluate elementary school children's learning of the key concepts taught in most sexual abuse prevention programs. The psychometric properties of the original 40-item CKAQ were established with 322 children ages six to 12. A new factor analysis suggests that a 24-item version would adequately measure knowledge of abuse prevention concepts. This article presents the psychometric properties of the revised version, including item-to-corrected-total correlations, interitem correlations, and one-month test–retest reliability. The analyses suggest several ways in which the CKAQ-Revised could be further improved.

Key words: **children; measurement; prevention; research; sexual abuse**

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Despite the large number of prevention programs developed in the past 10 years to teach children ways to deal with sexual abuse should they be approached or molested, there is only a beginning body of research on the programs' efficacy. Reviews of the published research (Tutty, 1990; Wurtele, 1987) cited approximately 30 studies that investigated whether children ages three to 13 years could learn and use the knowledge and skills taught in prevention programs. The reviewers interpreted this research as providing beginning support for child abuse prevention programs, but others remain skeptical about their usefulness (Reppucci & Haugaard, 1989). Continuing investigation of how children respond to such programs is necessary, especially given the complexity of the developmental changes experienced by children (Tutty, 1994) and the influence of cultural and family beliefs that may contradict the messages given in prevention programs (Tutty, 1991, 1993).

A recent nationwide survey of American school-based prevention programs (Bolden, 1992) found that although most programs expressed an interest in evaluation, one of the major constraints was finding appropriate research instruments. This article reviews the core concepts taught in school-based child sexual abuse prevention programs. These concepts formed the basis for the development of a 40-item measure, the Children's Knowledge of Abuse Questionnaire (CKAQ), which measures changes in knowledge and attitudes about abuse prevention concepts in children ages six to 13. The CKAQ was designed not to be program specific but to cover the range of concepts taught across various programs. A recent factor analysis found that 24 items of the CKAQ loaded on one factor, suggesting a shortened version of the scale and a reanalysis of the psychometric properties of the test.

In addition, because younger children have consistently demonstrated less comprehension of prevention

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principles (Conte, Rosen, Saperstein, & Shermack, 1985; Garbarino, 1987; Saslawsky & Wurtele, 1986; Tutty, 1992) and because developmental stages appear to play a key role in whether children understand child abuse prevention concepts (Berrick, 1991; Tutty, 1994), norms on the revised CKAQ are presented for three age groups of elementary school children. Finally, this article describes the strengths of the measure and suggests revisions of the CKAQ.

ABUSE PREVENTION CONCEPTS

Although there are many different formats used to provide prevention materials—including films, books, plays, puppet shows, discussion groups, and role-playing—the basic concepts conveyed by the programs are similar. There are 10 major themes: body ownership, good touch versus "bad" touch, private parts, no secrets, identification of strangers, tricks, permission to tell, touching by familiar people, fault and blame, and sexual abuse risk of boys. These ten themes are weighted differently across various prevention programs, depending on the goals and the age group of the children the program is designed to address. As mentioned previously, some emphasize stranger abuse rather than the more commonly found abuse by a familiar adult in a caretaking position. Sometimes the sexual aspects of child maltreatment are downplayed. Nevertheless, there is a surprising amount of congruity in the extent to which these concepts are identified as central.

Body Ownership

The concept of body ownership emphasizes that a child is in charge of his or her own body and has the right to say "no" to unwanted touches. In conjunction with this idea, many programs describe different kinds of feelings and give children permission to trust their feelings. For example, if a child is feeling uncomfortable with how someone is touching him or her, he or she is encouraged to pay attention to that reaction and attempt to get away.

Good Touch versus Bad Touch

One of the most widely used methods of conveying the concept that touches will provoke different feelings is the Touch Continuum (Anderson, 1986), which suggests not only that there are touches that feel good and bad but also that touches can change from good to bad. In addition, some touches may feel confusing, and children may find it difficult to identify their response to the touch. To differentiate between appropriate and nonappropriate touching, children are taught that it is not necessarily the part of the body that is touched that is important, but how they feel about the touch. Reaction to the Touch Continuum has been mixed. Conte (1986), for example, commented that the terms "good" and "bad" touch may be problematic, because some victims may experience at least some of the sexual touch as pleasing. He suggested that children be taught explicitly that even touches of private parts of the body that feel good may be abusive.

Private Parts

"Private parts" refers to the genitals and breast area or, as taught by one program, the area covered by a child's bathing suit. The discomfort that many adults feel in discussing sexuality in any form, however, has led to a concern about children being exposed to such information, especially when the correct names for sexual body parts are used. As a consequence, some programs recommend not speaking explicitly about sexuality but instead emphasizing safety aspects (Kraiser, Witte, & Fryer, 1989), an approach that is favored by many parents and trainers. The cost, according to Finkelhor and Araji (1984), is that the information about sexual abuse may be too abstract for young children who need concrete, specific examples (Conte et al., 1985). Another fear is that when reporting abuse children may not know the sexual terminology, thus adding to the confusion adults may experience in understanding their disclosure. In response to anxiety that children may become overly vigilant about anyone seeing their private parts, some programs specify that children be taught the situations in which parents and health professionals have appropriate reasons for seeing or touching private parts.

No Secrets

One of the ways in which a perpetrator may coerce a child into not disclosing abuse is to convince a child that the experience is a secret or that the child promised not to tell. In response to this dynamic, some programs discuss the difference between a surprise and a secret. Surprises are defined as positive information, such as a birthday present that is kept private for only a short period of time and then divulged. In contrast, children are given permission to tell some secrets even if they have promised not to. The secretiveness is a defining characteristic of abusive behavior perpetrated by familiar people, and thus permission to tell is crucial.

Identification of Strangers

Young children conceptualize strangers as ugly, threatening people. They may believe that they can identify strangers because they look mean or unpleasant,

similar to the stereotyped "bad guy" in children's television shows. It is important to teach children that "A stranger is a person you don't know, even if the person says he or she knows your mom and dad. Strangers often look and act very nice so you can't spot them by the way they look" (Koblinsky & Behana, 1984, p. 8). Because of a concern that we may be teaching children to regard strangers with a suspicion akin to paranoia, many newer programs also emphasize that most people are strangers and that most strangers are nice (Kraiser, Fryer, & Miller, 1988). Another issue regarding strangers is the extent to which a program focuses on "stranger danger" rather than on the more uncomfortable idea that the majority of perpetrators of child sexual abuse are known to the child and may be family members.

Tricks

Many programs explicitly give examples of the tricks adults may use to entice a child to accompany them, such as offers of candy, requests for help to find lost puppies, and messages that they are to accompany the person to go and meet their parents. Some programs encourage children to stay an arm's length away from strangers in the event that they may need to run and never to accept anything from a stranger, even if it belongs to them (Kraiser et al., 1988).

Permission to Tell

In addition to anxiety about circumventing the instruction of many perpetrators that the abuse is a secret and that the child should not tell, children may fear that they will not be believed if they report abuse. In virtually all prevention programs, children not only are encouraged to disclose abuse, but also, if not believed by the first adult, are instructed to keep telling other trusted adults until they are believed. To this end, some programs suggest that children develop a list of whom they might choose to tell if they were abused.

Touching by Familiar People

Familiar people, including relatives and family members, may touch children in inappropriate ways. Although most prevention programs attempt to emphasize this dynamic, Conte et al. (1985) found that even trained leaders of sexual abuse programs tended to emphasize stranger abuse more than was intended by the program material.

Fault and Blame

Children must be taught that sexual abuse is not their fault. Most programs attempt to relieve the burden of self-blame expressed by many abused children. Children are reminded that adults are responsible for behaving in an inappropriate manner toward children.

Boys' Risk of Sexual Abuse

Past research has focused on girls as victims; however, more recent research (Pierce & Pierce, 1985) has underlined the fact that boys are also targets of sexual abuse, including incest. Finkelhor (1984) suggested that boys face a double taboo against disclosing; the dynamics of the abuse are shameful or threatening, and in addition they may fear being considered homosexual, because most perpetrators of abuse against boys are men.

OUTCOME VARIABLES IN CHILD ABUSE PREVENTION RESEARCH

Child abuse prevention programs are commonly evaluated on either the extent of knowledge gained after children participate or whether children behave appropriately in simulated incidents in which a child is approached by an unfamiliar adult. The argument for the latter behavioral focus is that changing behavior is the ultimate goal in any prevention program (Fryer, Kraiser, & Miyoshi, 1987a, 1987b). Although the use of simulation techniques is controversial for ethical reasons (Conte, 1987), another problem with such techniques is that they are only appropriate for testing potential stranger abuse or abduction.

In contrast, there are several arguments for continuing to focus on knowledge. Despite the fact that the majority of studies have assessed knowledge gain, it would be a mistake to assume that we understand how children integrate prevention concepts that do not fit their developmental level or cultural background. Many of the early studies evaluating knowledge gain used questionnaires that were very short, from seven to 13 items. It is questionable whether, given the complexity of the concepts, learning could be adequately assessed using such brief measures. The few studies available that compared children over a range of ages found significant differences in knowledge, with younger children consistently demonstrating lower levels of learning (Conte et al., 1985; Saslawsky & Wurtele, 1986; Tutty, 1992).

A more thorough investigation of what concepts younger children find confusing is warranted. Although the goal of identifying whether prevention programs actually help children avoid abuse or disclose earlier will be the most important measure of whether the programs are effective, questions about whether young children can actually learn concepts that may be counter to their developmental or cultural background remain important areas for continued study.

AVAILABLE OUTCOME MEASURES

Information on the psychometric properties of the published research instruments relating to knowledge, attitudes, and beliefs about abuse in elementary school children were available for only five of a number of measures described. The 13-item Personal Safety Questionnaire, which is often used in conjunction with the What If Situations Test (Saslawsky & Wurtele, 1986), showed some of the best evidence of reliability. The Personal Safety Questionnaire contains questions about knowledge and attitudes about abuse. Its psychometric properties have been well established, with a one-week test–retest reliability of .64; its internal consistency using the Kuder–Richardson formula (K-R 20) is .78. A newer version (Wurtele, Kast, Miller-Perrin, & Kondrick, 1989) has been shortened to eight items and its one-month test–retest reliability established at .53. The What If Situations Test consists of four vignettes, with a possible eight points for each. Cronbach's alpha was .77, and interrater reliability for coding the child's descriptions was .99 (Saslawsky & Wurtele, 1986). The two measures have been most often used with kindergarten and young elementary school children (Wurtele, Marrs, & Miller-Perrin, 1987), with the exception of one study with a comparison group of students in grades 5 and 6 (Saslawsky & Wurtele, 1986).

More recently, Hazzard, Webb, Kleemeier, Angert, and Pohl (1991) developed a 25-item What I Know About Touching Scale. They used this measure with grade 3 and 4 elementary school children and established the internal consistency (Cronbach's alpha) at .75 and a two-week test–retest reliability of .77. Kolko, Moser, Litz, and Hughes (1987) developed a nine-item instrument composed of knowledge and opinion and experience and action questions. They reported the internal consistency (Cronbach's alpha) as .34, which is extremely low and suggests that the scale may be too short (DeVellis, 1991). Test–retest reliabilities were reported but were for four subsets of the nine questions. The final instrument, a 13-item knowledge questionnaire developed by Binder and McNeil (1987), established internal consistency at .70.

In summary, only limited psychometric analyses have been cited for these five scales. Even the best developed and most widely used, the Personal Safety Questionnaire, has rather low test–retest reliabilities for both the original 13-item and the revised eight-item version. Most of the scales have been used with a limited age group of children, and norms are not available for comparing scores from a wider age range of children. Furthermore, only three of these measures attempted to assess test–retest reliability, a psychometric property that is desirable when evaluating pretest–posttest designs. Given the wide availability of commercial prevention materials and television programs that incorporate sexual abuse in the plot, a pretest is becoming essential, because children are likely to have had prior exposure to prevention concepts. With so few measures available, the need for the development of new instruments with sound psychometric properties is clear.

DEVELOPMENT OF THE CKAQ

An extensive review of the literature on child sexual abuse prevention was the first step in developing a core of ideas that were common across a broad range of prevention programs (Tutty, 1990) and that could be used in the construction of items. The CKAQ was designed to measure how much children learned about important beliefs and facts about child abuse, such as "strangers look like ordinary people" and "even someone you know might try to touch you in ways you don't like." Also measured is knowledge of skills that could potentially prevent abuse such as "it's OK to say 'no' and move away if someone touches you in a way you don't like" and "if someone touches you in a way you don't like, you should tell a grown-up you trust." The CKAQ consists of 35 true–false items, with an additional five items to be answered by children in grades 3 and above.

The CKAQ was constructed so that children with no previous exposure to prevention materials could understand the questions. The instructions provide a basic description of the Touch Continuum (Anderson, 1986), explaining the difference between "good," "bad," and "confusing" touch, because without this information the questions would not make sense to a child with no previous experience with prevention concepts. This process allowed the testing of children before they viewed the prevention program; however, the instructions constitute a "mini-lecture" on prevention and might influence the children's scores on subsequent use of the measure. An analysis that addressed whether administering the CKAQ as a pretest gave children an unfair advantage when they responded to the measure again at posttest will be described later to provide information about this possible bias.

The CKAQ was designed to cover a range of difficulty in issues from simple, possibly familiar information (for example, the need for cautiousness with strangers) to common misperceptions (for example, the idea that children are more at risk of being sexually abused by strangers). Such a range is important both to adequately test the effects of the program and to prevent the possibility of all children scoring very

well, an occurrence that would allow little room for improvement after seeing the prevention program. In earlier research (Swan, Press, & Briggs, 1985), children who had no previous exposure to prevention materials scored extremely well on the pretest, rendering the instrument useless for evaluating subsequent knowledge gain after participation in a program.

The CKAQ begins with questions about assertiveness and coercion by peers, nonsexual touching, and attitudes about strangers, areas that were expected to be relatively familiar to children and were intended to establish a comfortable response to the questionnaire. Items related to sexual abuse and to the possibility that familiar people may touch children in confusing or uncomfortable ways were situated toward the end of the measure.

An important aspect of the CKAQ was the inclusion of items about positive touch. A continuing concern of parents and professionals with respect to child abuse prevention materials is that children may become self-conscious about touching and being touched. In response, some adults have stopped giving positive touches in case these might be misinterpreted as sexual advances, an unfortunate, unintended side-effect (Anderson, 1986). Because many programs explicitly encourage the giving and receiving of appropriate positive touches, it is of interest to ascertain whether this distinction can be understood by children.

A potential problem with evaluating elementary school programs is the wide range of children's reading levels. To compensate for younger children's low levels of reading skill, the questionnaire can be verbally administered to all participants. Thus, the youngest children receive individual administration of the CKAQ, and the test can be administered to older students in large groups. As recommended by Mindel (1993), the 35-item CKAQ was pretested with three types of respondents: colleagues, the potential users of the data, and 30 elementary school children in grades 1, 3, and 6, drawn from the population to be surveyed. The grade 6 students scored the highest, averaging 85 percent.

In light of continuing concerns about a possible ceiling effect, five items were added for administration to the older children. These items tested their understanding of more subtle ways in which they might be approached or abused and were similar in content to several developed by Sigurdson, Strang, and Doig (1987). Comments from the other constituent groups were used for further revision of items; however, the bulk of the response was favorable, providing informal evidence that the measure has at least adequate content validity (Bostwick & Kyte, 1988).

Psychometric Properties of the 40-Item CKAQ

The internal consistency of the CKAQ was calculated as .90 using K-R 20, the special form of coefficient alpha for tests with dichotomous responses (Nunnally, 1978). Temporal stability was established at $r = .76$ over one month. Furthermore, each CKAQ item was correlated with the corrected total score (the total score minus the score for the item in question). The resulting correlations were all positive and ranged from a high of .606 to a low of .033. More than 30 items had corrected item-to-total correlations higher than .20, considered good according to Nunnally. Finally, a sample of 113 children from all three grade levels were also given the 13-item version of the Personal Safety Questionnaire (Saslawsky & Wurtele, 1986) in addition to the CKAQ. As mentioned previously, the Personal Safety Questionnaire is one of the most widely used measures to test knowledge of child sexual abuse prevention concepts, although it has been used most frequently with kindergarten and grade 1 children. Despite the fact that the CKAQ was designed to be used with a wider age range of children, the Personal Safety Questionnaire appeared to be the best comparison measure. The resulting correlation between the Personal Safety Questionnaire and the CKAQ was .92, further evidence of the usefulness of the new measure.

Why, then, would one not simply use the shorter scale? A correlation looks at whether high scores on the CKAQ will be associated with high scores on the Personal Safety Questionnaire. The results suggest that students who perform well on one will do as well on the other. Thus, if the only interest is a single score, then either instrument will be useful, but the shorter one may be preferable because it can be administered more quickly. However, in investigating the specific items with which children from grades 3 and 6 had difficulty, most of the errors on the Personal Safety Questionnaire were in response to one question, "If an adult asks to see your private parts, should you get away from them right away?" The CKAQ has a wider range of item difficulties and, therefore, should be more sensitive and less vulnerable to ceiling effects when used with older children. Thus, if the goal is a more complex analysis about which particular concepts a program can assist learning with, then the longer, more in-depth measure would be preferable.

Sensitivity to Change

Also important in the choice of a research instrument is whether it is sensitive to change after an intervention. Initial research using the CKAQ as an outcome measure used a design in which a group of 400 elementary school children were tested at three times:

before participating in a prevention program, two weeks after participation, and at a five-month follow-up (Tutty, 1992). The program participants scored significantly better than children in the control group at posttest, and all children maintained their knowledge gains at follow-up. These results suggest that the CKAQ is sensitive to change when it does occur and provides informal support for the construct validity of the measure.

Furthermore, some of the children received a pretest ($N = 200$) and others did not ($N = 200$). A comparison of the posttest scores indicated that the pretest did not sensitize children to the material in the program. Thus, children who received the pretest performed no better on the posttest than those children who had not been pretested, suggesting that the CKAQ did not introduce a testing effect by inadvertently teaching concepts that were to be covered in the prevention program.

METHOD AND PARTICIPANTS

Information on the psychometric properties of the 40-item version of the CKAQ suggested that the measure may be useful as a tool for evaluating other child abuse prevention programs. However, further investigation of the instrument was warranted. The remainder of this article presents the results of a factor analysis that suggests using a 24-item version of the CKAQ.

The psychometric properties of the CKAQ were investigated using scores collected from 332 children in grade 1 ($n = 99$), grade 3 ($n = 113$), and grade 6 ($n = 120$) who had not as yet participated in a school-based child sexual abuse prevention program. For different analyses, subsets of the scores were used, but in all cases approximately the same numbers of children from each of the three grades were included. The children attended school in a midsize city in southern Ontario, Canada. Demographic information collected from parents indicated that 98 percent to 100 percent of the fathers worked full-time, and of those mothers who worked, 53 percent to 63 percent worked full-time. One-third (37 percent) of fathers worked in professional or business occupations, one-half (48 percent) in skilled and trade occupations, and 15 percent in service or unskilled work. In contrast, 42 percent of the working mothers were in professional or business positions, and 46 percent worked in services or unskilled trades. The sample was primarily composed of white families, with a small proportion of Asian and black families.

RESULTS

Factor Analysis of the CKAQ

A factor analysis was conducted on the first 35 CKAQ items, because although it would have been interesting to have included all items in the analysis, this would have meant excluding the entire population of grade 1 students. A second consideration was that a larger sample size is preferable for factor analysis. DeVellis (1991) recommended having at least 300 participants for factor analytic procedures. With the grade 1 students included the total sample was 332, whereas if they were excluded the sample size would have been 233.

It was expected that the measure would prove to be unidimensional. A principal components analysis was used to extract factors by rank ordering the items in terms of highest association with the construct being measured. The first two factors, as identified by the eigenvalue 1.00 rule and the SCREE test (Kim & Mueller, 1978), were then rotated using a varimax procedure. Using .40 as a cutoff to estimate which items loaded significantly on each factor, 22 of the 35 items loaded on factor 1, accounting for 19.4 percent of the total variance (Table 1). Of the remaining items, two loaded solely on factor 2 (7.2 percent of the variance). To inspect the last five items that were answered only by the older children in grades 3 and 6, an additional principal components analysis was conducted on all 40 items ($n = 233$). Only two of the five additional items loaded significantly on factor 1, which was composed of a majority of the same items as the other factor analytic procedure. Including these last two, 24 CKAQ items loaded on one factor.

Reliability of the CKAQ-Revised

Four analyses were used to re-examine various forms of reliability for the revised 24-item CKAQ: internal consistency, interitem correlations, item-to-corrected-total correlations, and temporal stability (test–retest) reliability. The internal consistency (K-R 20) was calculated on the scale using the 22 items answered by the 332 grade 1, 3, and 6 students. For research instruments that use group data, DeVellis (1991) suggested that alpha levels between .80 and .90 be regarded as very reliable scales of an appropriate length. Thus, the resulting alpha of .87 indicates strong internal reliability. The average of the interitem correlations of the 24-item revised scale was $r = .201$. Of these 552 comparisons only five were negative, the range being −.044 to .501.

The item-to-corrected-total correlations were recalculated for the revised CKAQ. The correlations of all 24 items were above .300 (see Table 1), clearly in the range suggested as acceptable by Nunnally (1978). Finally, because many evaluators are interested in knowing knowledge levels before children participate in a program in comparison to their knowledge levels

TABLE 1—Factor Loading and Item-to-Corrected-Total Correlations of Children's Knowledge of Abuse Questionnaire Items

Item	Factor 1 Loading	Item–Total Correlation	Proportion of Correct Responses
7. It's OK to say "no" and move away if someone touches you in a way you don't like.	.669	.626	.83
13. If a grown-up tells you to do something, you always have to do it.	.608	.580	.59
14. If your friend says s/he won't be your friend anymore if you don't give her/him your last piece of candy, then you should give it to her/him.	.602	.532	.80
40. If someone walks in while you are having a bath and you feel uncomfortable, you should just keep quiet.[a]	.592	.571	.77
19. Some touches start out feeling good and then turn confusing.	.574	.508	.78
20. You can trust your feelings about whether a touch is good or bad.	.567	.507	.78
11. Even hugs and tickles can turn into bad touches if they go on too long.	.564	.475	.83
16. If you don't like how someone is touching you, it's OK to say "no."	.562	.493	.88
23. You have to let grown-ups touch you whether you like it or not.	.556	.523	.77
22. Even someone you like could touch you in a way that feels bad.	.554	.396	.78
5. Sometimes it's OK to say no to a grown-up.	.528	.501	.80
36. If your babysitter tells you to take off all your clothes but it's not time to get undressed for bed, you have to do it.[a]	.514	.389	.78
1. You always have to keep secrets.	.503	.450	.68
17. Strangers look like ordinary people.	.495	.459	.67
8. You can always tell who's a stranger—they look mean.	.492	.457	.55
13. If someone touches you in a way you don't like, you should not tell anyone.	.489	.412	.82
21. If a mean kid at school orders you to do something, you had better do it.	.488	.404	.88
15. If someone touches you in a way you don't like, it is your own fault.	.458	.375	.83
31. Boys don't have to worry about someone touching their private parts.	.458	.384	.84
34. Even someone in your family might want to touch your private parts in a way that feels confusing.	.444	.419	.63
4. A stranger is someone you don't know, even if they say they know you.	.439	.408	.44
30. Sometimes someone in your family might touch you in a way you don't like.	.427	.362	.79
25. If someone touches you in a way that does not feel good, you should keep telling until someone believes you.	.423	.333	.83
32. If a friend's dad asks you to help him find their lost cat, it is OK to go with him and help.	.408	.342	.54

[a]Item included in a second principal components analysis of the 40-item version ($N = 233$).

TABLE 2—Average Scores on the Children's Knowledge of Abuse Questionnaire, by Grade and Gender

Grade	Girls			Boys			Combined		
	N	Average Score	*SD*	*N*	Average Score	*SD*	*N*	Average Score[a]	*SD*
1 (ages 6 to 7)	53	50.0	16.6	46	57.2	17.9	99	53.4	17.5
3 (ages 8 to 9)	50	76.2	18.9	63	76.8	15.6	113	76.5	17.1
6 (ages 11 to 12)	52	91.1	10.7	68	87.8	15.2	120	89.7	12.9

[a]For grade 1, range 18, 95 percent; for grade 3, range 8, 100 percent; for grade 6, range 21, 100 percent.

afterward, it was of interest to establish temporal stability (test–retest reliability) as an additional estimate of random error of measurement. This was accomplished using scores from a group of 101 students from grades 1, 3, and 6, each of whom was tested twice, one month apart. The resulting correlation of .88 is very respectable, especially for a children's scale used over that length of time.

CKAQ-Revised Norms

The CKAQ-Revised scores provide an initial set of norms for gender and age on the children who were included in the sample (Table 2). There were no significant differences in scores on the basis of gender for any age group. The overall effect of gender on CKAQ scores was not significant ($t = 0.75$, $p = .46$). Differences on the basis of age were, however, significant ($F = 155.4$, $p = .000$) such that younger children had consistently lower scores on the measure than older children (Tutty, 1992). Notably, there was no ceiling effect with the grade 6 students ($n = 120$), whose average score was 89.7 percent without having participated in a prevention program. These pretest scores leave room for knowledge gain after exposure to prevention concepts for most students, although it must be acknowledged that some grade 6 students did score 100 percent the first time they responded to the measure.

CONCLUSION

Compared to the other published instruments that purport to test children's knowledge of abuse prevention concepts, the CKAQ-Revised has been psychometrically demonstrated to be a unidimensional scale that has substantial evidence of reliability on a wide age range of children. Further work validating the scale with new samples of children is now necessary (Comrey, 1988). Areas for specific focus include broadening the sample to look at issues of racial backgrounds and socioeconomic characteristics, because the norm group was fairly uniform on these variables.

Three of the items that had the lowest item-to-total correlations and that, additionally, did not load on either factor in the principal components analysis dealt with appropriate touch rather than inappropriate touch. These items concerned whether it is OK to receive hugs from adults that you like and whether it is sometimes appropriate for parents or health professionals to look at a child's private parts. Recent research by Blumberg, Chadwick, Fogarty, Speth, and Chadwick (1991) found that although children knew much of the information about inappropriate touch at pretest, they had difficulty identifying appropriate touch. After participating in a prevention program, these children significantly improved their ability to identify appropriate touch. Thus, it may be that knowledge about appropriate touch constitutes a different variable than knowledge about inappropriate touch. If so, a separate subscale on the topic could be constructed for the CKAQ. Such a subscale would be a valuable addition to program evaluations to address the reservations expressed by many parents and professionals about prevention programs that children overgeneralize information and misinterpret appropriate touches.

Given the vast expansion in the number of child abuse prevention programs being marketed, research evaluating the programs has been falling behind. Comparisons of programs are an important next step to determine which might prove most effective. To date, few studies have done comparative research on child-directed programs, exceptions being Wurtele, Saslawsky, Miller, Marrs, and Britcher (1986) and Wurtele et al. (1989). It is hoped that with the development of new measurement tools with demonstrated psychometric properties such as the CKAQ-Revised, further evaluation of child sexual abuse prevention programs will be facilitated. ■

REFERENCES

Anderson, C. (1986). A history of the Touch Continuum: An interview with Cordelia Anderson. In M. Nelson & K. Clark (Eds.), *The educator's guide to preventing child sexual abuse* (pp. 15–25). Santa Cruz, CA: Network Publications.

Berrick, J. D. (1991). Sexual abuse prevention training for preschoolers: Implications for moral development. *Children & Youth Services Review, 13*, 61–75.

Binder, R., & McNeil, D. (1987). Evaluation of a school-based sexual abuse prevention program: Cognitive and emotional effects. *Child Abuse & Neglect, 11*, 497–506.

Blumberg, E., Chadwick, M., Fogarty, L., Speth, T., & Chadwick, D. (1991). The touch discrimination component of sexual abuse prevention training: Unanticipated positive consequences. *Journal of Interpersonal Violence, 6*(1), 12–28.

Bolden, E. (1992, September). *A critical look at school-based child maltreatment prevention programs.* Paper presented at the Ninth International Congress on Child Abuse and Neglect, Chicago.

Bostwick, G., & Kyte, N. (1988). Validity and reliability. In R. Grinnell, Jr. (Ed.), *Social work research and evaluation* (3rd ed., pp. 11–136). Itasca, IL: F. E. Peacock.

Comrey, A. (1988). Factor-analytic methods of scale development in personality and clinical psychology. *Journal of Consulting and Clinical Psychology, 56*, 754–761.

Conte, J. (1986). Evaluating prevention education programs. In M. Nelson & K. Clark (Eds.), *The educator's guide to preventing child sexual abuse* (pp. 126–129). Santa Cruz, CA: Network Publications.

Conte, J. (1987). Ethical issues in the evaluation of prevention programs. *Child Abuse & Neglect, 11*, 171–172.

Conte, J., Rosen, C., Saperstein, L., & Shermack, R. (1985). An evaluation of a program to prevent the sexual victimization of young children. *Child Abuse & Neglect, 9*, 319–328.

DeVellis, R. (1991). *Scale development: Theory and applications.* Newbury Park, CA: Sage Publications.

Finkelhor, D. (1984). *Child sexual abuse: New research and theory.* New York: Free Press.

Finkelhor, D., & Araji, S. (1984, April). *The prevention of child sexual abuse: A review of current approaches.* Paper presented at the meeting of the American Orthopsychiatric Society, Toronto.

Fryer, G., Kraiser, S., & Miyoshi, T. (1987a). Measuring actual reduction of risk to child abuse: A new approach. *Child Abuse & Neglect, 11*, 173–179.

Fryer, G., Kraiser, S., & Miyoshi, T. (1987b). Measuring children's retention of skills to resist stranger abduction: Use of the simulation technique. *Child Abuse & Neglect, 11*, 181–185.

Garbarino, J. (1987). Children's response to a sexual abuse prevention program: A study of the Spiderman comic. *Child Abuse & Neglect, 11*, 143–148.

Hazzard, A., Webb, C., Kleemeier, C., Angert, L., & Pohl, J. (1991). Child sexual abuse prevention: Evaluation and one-year follow-up. *Child Abuse & Neglect, 15*, 123–138.

Kim, J., & Mueller, C. (1978). *Factor analysis: Statistical methods and practical issues.* Beverly Hills, CA: Sage Publications.

Koblinsky, S., & Behana, N. (1984). Child sexual abuse: The educator's role in prevention, detection, and intervention. *Young Children, 39*, 3–15.

Kolko, D., Moser, J., Litz, J., & Hughes, J. (1987). Promoting awareness and prevention of child sexual victimization using the Red Flag/Green Flag Program: An evaluation with follow-up. *Journal of Family Violence, 2*(1), 11–35.

Kraiser, S., Fryer, G., & Miller, M. (1988). Programming for preventing sexual abuse and abduction: What does it mean when it works? *Child Welfare, 67*, 69–78.

Kraiser, S., Witte, S., & Fryer, G. (1989). Child sexual abuse prevention programs: What makes them effective in protecting children? *Children Today, 18*, 23–27.

Mindel, C. (1993). Instrument design. In R. Grinnell, Jr. (Ed.), *Social work research and evaluation* (4th ed., pp. 221–241). Itasca, IL: F. E. Peacock.

Nunnally, J. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.

Pierce, R., & Pierce, L. (1985). The sexually abused child: A comparison of male and female victims. *Child Abuse & Neglect, 9*, 191–199.

Reppucci, N., & Haugaard, J. (1989). Prevention of child sexual abuse: Myth or reality. *American Psychologist, 44*, 1266–1275.

Saslawsky, D., & Wurtele, S. (1986). Educating children about sexual abuse: Implications for paediatric intervention and possible prevention. *Journal of Paediatric Psychology, 11*, 235–245.

Sigurdson, E., Strang, M., & Doig, T. (1987). What do children know about preventing sexual assault? How can their awareness be increased? *Canadian Journal of Psychiatry, 32*, 551–557.

Swan, H., Press, A., & Briggs, S. (1985). Child sexual abuse prevention: Does it work? *Child Welfare, 64*, 395–405.

Tutty, L. (1990). Preventing child sexual abuse: A review of current research and theory. In M. Rothery & G. Cameron (Eds.), *Child maltreatment: Expanding our concepts of helping* (pp. 259–275). Hillsdale, NJ: Lawrence Erlbaum.

Tutty, L. (1991). Child sexual abuse: A range of prevention options. In B. Thomlison & C. Bagley (Eds.), Child sexual abuse: Expanding the research base on program and treatment outcomes. *Journal of Child and Youth Care* [Special Issue], 23–41.

Tutty, L. (1992). The ability of elementary school aged children to learn child sexual abuse prevention concepts. *Child Abuse & Neglect, 16*, 369–384.

Tutty, L. (1993). The relationship of parental knowledge and children's learning of child sexual abuse prevention concepts. *Journal of Child Sexual Abuse, 2*(1), 83–103.

Tutty, L. (1994). Developmental issues in young children's learning of sexual abuse prevention concepts. *Child Abuse & Neglect, 18*, 179–192.

Wurtele, S. (1987). School-based sexual abuse prevention programs: A review. *Child Abuse & Neglect, 11*, 483–495.

Wurtele, S., Kast, L., Miller-Perrin, C., & Kondrick, P. (1989). Comparison of programs for teaching personal safety skills to preschoolers. *Journal of Consulting and Clinical Psychology, 57*, 505–511.

Wurtele, S., Marrs, S., & Miller-Perrin, C. (1987). Practice makes perfect? The role of participant modeling in sexual abuse prevention programs. *Journal of Consulting and Clinical Psychology, 55*, 599–602.

Wurtele, S., Saslawsky, D., Miller, C., Marrs, S., & Britcher, J. (1986). Reaching personal safety skills for potential prevention of sexual abuse: A comparison of treatments. *Journal of Consulting and Clinical Psychology, 54*, 688–692.

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