Published in final edited form as:

Child Maltreat. 2010 May ; 15(2): 180–189. doi:10.1177/1077559509356020.

Associations Between Nonverbal Behaviors and Subsequent Sexual Attitudes and Behaviors of Sexually Abused and Comparison Girls

Sonya Negriff¹, Jennie G. Noll², Chad E. Shenk², Frank W. Putnam², and Penelope K. Trickett¹

¹University of Southern California, Los Angeles

²Cincinnati Children's Hospital Medical Center, Ohio

Abstract

This prospective, longitudinal study examined a sample of sexually abused and comparison girls to determine (a) whether there were patterns of behavior that differed between the groups and (b) whether nonverbal behaviors assessed at the initial visit ($n = 147$; $M = 11.11$ years; $SD = 3.02$) might predict sexual attitudes and behaviors at a later point in development ($n = 144$; $M = 18.52$ years; $SD = 3.52$). At the initial assessment, nonverbal behaviors during an interaction with an unknown male interviewer were factor analyzed revealing 3 factors: *wary* (e.g., pouting), *affiliative* (e.g., chin resting on hand), and *coy* (e.g., tongue show). Abused girls scored higher on the *coy* factor that was related to earlier age at first voluntary intercourse later in development (approximately 7 years later). High scores on the *affiliative* factor were related to higher sexual permissiveness and less negative attitudes toward sex. Results indicate that sexually abused girls showed early maladaptive patterns in interpersonal interactions, which were subsequently related to risky sexual attitudes and behaviors.

Keywords

child sexual abuse; long-term effects

Sexual behavior problems are deviations from a normal course of sexual development, which are developmentally inappropriate or potentially harmful (Silovsky & Bonner, 2003). In childhood, sexual behavior problems can emerge in the form of excessive masturbation, precocious attempts at sexual intercourse, or compulsive sex play (Finkelhor & Browne, 1985; Friedrich & Luecke, 1988; Silovsky & Niec, 2002). In addition to a greater frequency of developmentally expected sexual acts, children with sexual behavior problems engage in more unexpected and intrusive acts than do children on a "normative" sexual development course (Pithers & Gray, 1998). In older children and adolescents, sexual behavior problems

Reprints and permission: sagepub.com/journalsPermissions.nav

Corresponding Author: Sonya Negriff, University of Southern California, School of Social Work, Montgomery Ross Fisher Bldg., Los Angeles, CA 90089. negriff@usc.edu.

Declaration of Conflicting Interests

The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

may take the form of early onset of sexual activity and sexual risk-taking behavior including multiple partners, unprotected intercourse, intercourse at an early age, or prostitution (Friedrich, 1993; Trickett & Putnam, 1998). Early sexual behavior problems are associated with a variety of problems in development such as poor impulse control skills and aggressive behaviors (Araji, 1997).

Sexual abuse is one experience in particular, which is thought to potentially disrupt normative sexual development (Silovsky, Niec, Bard, & Hecht, 2007). Especially for females, the experience of childhood sexual abuse may affect normative sexual development including sexual decision making and forming satisfying sexual relationships (Trickett & Putnam, 1993). Studies have shown that child sexual abuse victims are more likely to be sexually precocious than nonvictims (Beitchman, Zucker, Hood, & DaCosta, 1991; Goldston, Turnquist, & Knutson, 1989; Mayall & Gold, 1995), as well as engage in harmful or high-risk sexual behaviors such as sexual activity with multiple partners (Greenberg et al., 1999), early onset sexual behavior (Noll, Trickett, & Putnam, 2003; Wilsnack, Vogeltanz, Klassen, & Harris, 1997), sexual aggression (Lodico, Gruber, & DiClemente, 1996), unprotected sex (Lodico & DiClemente, 1994), and prostitution (Beitchman et al., 1991; Fergusson, Horwood, & Lynskey, 1997; Lodico et al., 1996; Polusny & Follette, 1995; Senn, Carey, Venable, Coury-Doniger, & Urban, 2006; Simons & Whitbeck, 1991; Springs & Friedrich, 1992). Women sexually abused in childhood have also been shown to have higher incidence of sexually transmitted diseases (Wingood & DiClemente, 1997), higher rates of teenage pregnancy (Fergusson et al., 1997; Noll et al., 2003), and a greater number of lifetime sexual partners (Randolph & Mosack, 2006) than their nonabused peers. These outcomes may pose considerable challenges for abuse victims as they attempt to negotiate normal sexual development. Thus, there is considerable promise in identifying mechanisms predicting such maladaptive development in abused populations so that prevention efforts for sexual behavior problems are better informed and result in more effective outcomes.

Traumatic Sexualization

Sexual abuse is believed to compromise the negotiation of stage-salient developmental tasks, such as age-appropriate sexual behavior, thus interfering with eventual optimal adaptation in this domain (Cicchetti & Toth, 1995; Silovsky et al., 2007; Trickett & Putnam, 1993). This disruption in normal sexual development may occur through two primary pathways: (a) the expression and shaping of sexualized behaviors and (b) impairment in how abused individuals think and make decisions about sexual activity.

First, the expression and shaping of sexualized behaviors may occur through the “traumatic sexualization” of young children who are drawn into sexually inappropriate games before they understand that such activities are inappropriate (Finkelhor & Browne, 1985; Haynes-Seman & Krugman, 1989). The traumatic sexualization aspect of Finkelhor’s (1985) traumagenic dynamics model refers to a process in which a victim’s sexuality “is shaped in a developmentally inappropriate and interpersonally dysfunctional fashion as a result of sexual abuse” (Finkelhor & Browne, 1985, p. 531). This can occur through various hypothesized mechanisms: a child being rewarded by an offender for sexual behavior that is developmentally inappropriate, through the exchange of affection, attention, or gifts for

sexual behavior, or through misconceptions about sexual behavior and morality that are transmitted from the offender to the child.

There is substantial evidence to suggest that sexually abused children are more likely to display age-inappropriate sexual behaviors such as repeated coercive fellatio, insertion of objects into the rectum, and attempted forcible intercourse with other children, thereby setting up opportunities to shape age-inappropriate sexual development (Berliner, 1991; Friedrich, 1993; Gale, Thompson, Moran, & Sack, 1988). Victims of childhood sexual abuse may develop a heightened sexual awareness at an early age, which can manifest in eroticized behaviors, engagement of other children in a sexual manner, or sexual aggressiveness toward other children (Friedrich & Luecke, 1988). Other research has shown that women with a history of childhood sexual abuse had the highest rates of coy or flirtatious behavior during interactions with members of the opposite sex (Parks, Hequembourg, & Dearing, 2008). Hence, the notion of traumatic sexualization is supported by evidence that children who have been sexually abused appear more likely to display sexualized behavior, adopt inappropriate repertoires of sexual behavior, have confusion and misconceptions about their sexual self-concept, and develop unusual emotional associations with sexual activities (Finkelhor & Browne, 1985). These behaviors may place sexual abuse victims on a trajectory that further shapes their sexual behaviors and attitudes about sex and may increase their risk for sexual behavior problems later in development.

The second pathway to disruption in normal sexual development may result from an impairment in how abused individuals think and make decisions about sexual activity due to early sexual abuse experiences that shape the young child's ideas and expectations about what constitutes normal sexual interactions. This may take place through the perpetrator's modeling, instruction, direction and reinforcement, and even punishment. In addition, the child may be taught inappropriate beliefs through verbal and nonverbal messages (Messman & Long, 1996). As the abuse experience is likely to be the first introduction to sexuality for younger children, the abuse experience itself may establish a script by which future sexual experiences and romantic encounters follow (Browning & Laumann, 1997). The sexual abuse may lead to conflicted and distressing emotions that may affect the developing sexual self-concept well into adulthood (Finkelhor & Browne, 1985). Women who have had the experience of childhood sexual abuse may be socialized to view their sexual experiences as typical (Redfearn & Laner, 2000). Therefore, they may develop sexual attitudes that are consistent with their experience, which may shape their subsequent risky sexual behavior (Randolph & Mosack, 2006). In particular, sexual abuse by a biological father or closely related father figure may be perceived as intimate and reflective of a mutual sexual relationship. This distorted relationship may affect the victim's views of what constitutes a healthy romantic relationship. Such that sex and intimacy become closely tied together, these girls may approach boys with sexual overtures as the way they know how to be accepted by others. In addition, victims of sexual abuse may be less able to view boyfriends as "friends" and thus amplify sexual aspects of relationships rather than glean the emotional rewards (Noll, Trickett, & Putnam, 2000).

Sexual abuse, in particular, may differ from other types of abuse in producing sexual distortions or attitudes and beliefs about sex that are developmentally inappropriate or that

are likely to increase engagement in problematic sexual behavior. In one of the few longitudinal, prospective studies of the sexual development of sexually abused females, the sexual abuse group reported significantly greater preoccupation with sex (i.e., frequent sexual thoughts and feelings), ambivalent attitudes toward sex, younger age at first voluntary intercourse, and a greater desire to become pregnant than their nonabused peers (Noll et al., 2003). Additionally, childhood sexual behavior problems were found to predict subsequent sexual aversion (i.e., negative attitudes about sex and nonpermissive attitudes). A different study with a sample of college women found that those with a history of childhood sexual abuse had more negative feelings about sexuality than those without the experience of childhood sexual abuse (Johnsen & Harlow, 1996). This evidence demonstrates that sexual abuse can affect the development of cognitions about sexual behavior.

Despite the evidence linking sexual abuse to maladaptive sexual development, there have been limited investigations into longitudinal associations between early sexual behavior and later sexual attitudes and behavior problems. Several researchers have argued that the relationship between childhood sexual abuse and women's sexual functioning is mediated by their cognitive and affective sexual responses (Anderson & Cyranowski, 1995; Fisher, 1986). This is supported by evidence that childhood sexual abuse involving penetration results in lower sexual self-esteem, which in turn leads to high-risk sexual behaviors (Lemieux & Byers, 2008). Thus, it may be that for sexually abused girls, distorted attitudes about sex are formed soon after the abuse and unless steps are taken to disrupt their trajectory they could be prone to a number of sexually risky behaviors. However, developmental models based on prospective, longitudinal data are lacking, which limits the inferences that can be made about the relationship between early sexual behaviors and the subsequent development of problematic sexual attitudes and behaviors.

The Current Study

The purpose of the current study was to examine behaviors displayed during an interaction with an unknown male research assistant to discern specific aspects of behaviors that vary between sexually abused and comparison girls so that predictions could be made about how these early behaviors relate to later sexual attitudes and behaviors (i.e., preoccupation, permissiveness, age at first intercourse). Data were drawn from a prospective, longitudinal study of the effects of childhood sexual abuse on female development. Sexual abuse was defined as intrafamilial sexual abuse (e.g., by a biological father or father figure). Observational methodology was used at the initial study assessment to provide an objective account of the differences between abused and nonabused participants in rates of sexualized behaviors. Observational coding of sexual behaviors was used because, although parents may be able to report on sexual behaviors (i.e., excessive masturbating, masturbating in public, etc.) in childhood, these behaviors are not as observable as children transition into adolescence. Moreover, there are subtle behaviors that may go unobserved or unrecognized by parents. Thus, it is necessary to assess sexualized behavior in older children and adolescents in a different way. Behavioral observation has been used in many settings to gather information about behaviors of individuals (Kelly, Halford, & Young, 2002; LePage & Mogge, 2001). Observational data is useful in that it accesses information that cannot be

obtained by other methods and that is not available to either the conscious subjective experience of the individual or the parent.

Participants were followed into late adolescence and young adulthood to assess whether the initial observed sexualized behaviors were systematically related to later patterns of sexual development. It was expected that sexually abused girls would show significantly more sexualized and maladaptive behaviors when interacting with the male research assistant. It was also expected that early maladaptive behavior would predict maladaptive sexual attitudes and risky sexual behavior later in development. If early behaviors are predictive of later difficulties related to sexual attitudes and behaviors, this would be useful to researchers and clinicians seeking to prevent these deleterious outcomes.

Methods

Participants

Participants were part of an ongoing longitudinal study of the long-term effects of childhood sexual abuse on female development. Abused females were referred by protective service agencies in the greater Washington, D.C., metropolitan area. Eligibility criteria for inclusion in the study were (a) the victim was female, aged 6–16 years; (b) disclosure of substantiated referring abuse occurred within 6 months of participation; (c) sexual abuse involved genital contact and/or penetration; (d) the perpetrator was a family member, including parent, stepparent, sibling, uncle, or mother's live-in boyfriend; and (e) a nonabusing parent or guardian (usually the child's mother) was willing to participate. To recruit the comparison sample, advertisements were placed in community newspapers and posted in welfare, day care, and community facilities in the same neighborhoods in which the abused girls lived. Comparison girls were similar to the abused girls in terms of age, predisclosure socioeconomic status (SES), and family constellation (one- or two-parent families). However, girls in the comparison group were more likely to be a minority (primarily African American). All families ranged from low to middle SES, with mean Hollingshead (Hollingshead, 1976) scores of approximately 35 (defined as blue-collar or working class). Forty-nine percentage of the sample was Caucasian, 46% African American, 4% Hispanic, and 1% Asian American.

The initial assessment (Time 1) sample consisted of 84 abused and 82 comparison girls ($N = 166$) ranging in age from 5.91 to 16.89 years ($M = 11.11$, $SD = 3.02$). Two follow-up interviews (Time 2 and 3) were conducted at 1-year intervals after the initial assessment, and a third follow-up (Time 4) was conducted 2–3 years subsequent to Time 3 (an average of 7 years after the initial assessment). Time 5 was conducted approximately 2 years subsequent to Time 4 (average of 9 years after the initial assessment). Data for the current analysis come from the initial assessment (Time 1) and the Times 4 and 5 follow-up.

Due to video quality, only 147 cases of the total 166 at Time 1 could be coded. These 147 cases were used for analyses that determined the factor structure of the observational ratings. However, only 133 of these 147 cases were used to assess group differences on sexual behavior at the initial assessment, because 14 comparison participants subsequently disclosed that they had experienced sexual abuse prior to their initial assessment. Time 4

consisted of 143 of the original 166 participants. The same 14 comparison participants were dropped, resulting in 129 participants with available data for Time 4. To maximize the sample size for follow-up analyses, data from Time 5 were used for 15 subjects who did not attend the Time 4 assessment but did attend the Time 5 assessment. This resulted in a final sample size of 144 for analyses predicting sexual attitudes and behaviors. These 15 participants who attended Time 5 but not Time 4 did not differ significantly from the Time 4 sample with respect to minority status, SES, marital or cohabitation status, group membership, or any of the independent or dependent variables. However, as would be expected, the average age of these participants was slightly older ($M = 21.32$, $SD = 3.20$) than the average age for the Time 4 sample ($M = 18.19$, $SD = 3.42$).

Procedure

The initial assessment was structured so that there was always a male interviewer working with the child (blind to the abuse or nonabuse status). This created a standardized situation in which the microcoded behaviors were observed. Additionally, because of the sexual aspects of the behaviors the microcoding system was designed to capture, it was determined that these behaviors would be more prominent when the child was working with a male interviewer. For the first session, the parent and child arrived at a central location for the interview. After they completed the consent and assent, they were both brought to the interview room where the child would be working. After being introduced to the child interviewer, the parent was taken to a different room where they completed a number of standardized measures. The male child interviewer then began the warm-up procedure with the child.

Warm-Up Procedure—Prior to the entrance of the child, paper and markers were placed on a table in the corner of the interview room. Once the parent had left the room, the child interviewer sat down at the testing table and told the child (while pointing to the markers and paper on the table) that she could draw a picture if she wanted before they got started and that she could draw on the table or on the floor or anywhere she would like. After giving these instructions, the child interviewer began to write subject numbers on the folder while engaging in “getting-to-know-you discussion” for 8 min. Possible topics for discussion were school, weather, sports, and the picture being drawn. After the 8-min warm-up, the child was administered a number of questionnaires, including a measure of sexual behavior problems. Subsequent assessments (Times 2–5) occurred as described previously (yearly, biennial) with a computerized questionnaire of sexual attitudes and behaviors being administered among other measures.

Videotape Coding of the Observed Nonverbal Behaviors—The videotape of the 8-min “warm-up” session was coded by trained observers, who were blind to the abuse status of the participants. The observers rated the frequency of each of the 54 behaviors on the coding sheet during the 8-min situation. Each videotape was coded by two of the four trained observers and excellent interrater reliability was achieved for all 147 participants using a two-way mixed effects model with absolute agreement (intraclass correlation coefficient [ICC] = .93; ICC range = .73 to .99; ICC median = .95).

Measures

Microcoding of the Observed Nonverbal Behaviors—The microcoding system was used in previous research to examine the flirtatiousness of sexually abused girls (Mausert-Mooney, 1993). The coding system was developed from classifications given to specific nonverbal behaviors that occurred in naturalistic courtship situations (Givens, 1978, 1983). Based on these observations, particular classes of nonverbal behaviors that were associated with sexual attraction were identified. Behaviors such as self-clasping, coy looks, limb flexing, and pigeon-toeing were classified as “submissive.” Behaviors such as chest protruding, head toss, and hair preening were classified as “flirtations.” Pouting, tongue show, mouth compressed, and head tilting back were classified as “negative feelings.”

The coding system used in the current study included frequency ratings of 54 discrete nonverbal behaviors. Examples of behaviors are “leans toward other,” “rocking motion,” “crotch touch,” “legs spread apart,” “mouth compressed,” and “side head tilt.” The coding sheet can be obtained from the first author. Each item was standardized so that higher frequency items would not be given more weight than lower frequency items. The usable items were then entered into exploratory factor analysis to determine whether the behaviors grouped together to form conceptually distinct factors of nonverbal behavior (see Results section for factor analysis).

Sexual Activities and Attitudes—The Sexual Activities and Attitudes Questionnaire (SAAQ) was developed for the main study and includes 35 items modeled after the Sex Activity Questionnaire for Girls and Boys (Udry, 1988) and 5 items modeled after the Fear of Sex subscale from the Children’s Impact of Traumatic Events Scale (Wolfe, Gentile, Michienzi, & Sas, 1991). The SAAQ was computerized and the participants listened to the question and answer choices through headphones and clicked on their response. Previous analyses indicated four factors resulting from these items, which were invariant from Time 4 to Time 5: sexual permissiveness (12 items; $\alpha = .96$), sexual preoccupation (15 items; $\alpha = .91$), negative attitudes toward sex (10 items; $\alpha = .85$), and pressure to engage in sex (6 items; $\alpha = .70$; see Noll et al., 2003, for item descriptions and factor analysis of SAAQ).

Healthy attitudes: The sexual permissiveness scale from the SAAQ measured healthy attitudes toward sex and includes items that reflect permissive attitudes toward a relatively normative set of desires and behaviors (e.g., holding hands, necking, kissing).

Sexual distortions: Three scales from the SAAQ were used to measure distorted sexual attitudes: (a) sexual preoccupation includes items that reflect thinking about sex frequently and being turned on by pornographic pictures, (b) negative attitudes toward sex includes items that reflect feelings that sex is dirty and embarrassing, (c) pressure to engage in sex includes items that reflect a belief that sex is expected, respect from friends will be gained, and that one will feel more loved and wanted upon having sex.

Age at first consensual intercourse: This was obtained by a single question asking the participants’ age at first consensual intercourse (1 = 12 years old or younger; 2 = 13–14

years old; 3 = 15–16 years old; 4 = 17–18 years old; 5 = 19–20 years old; 6 = 21 years old or older).

Covariates—Covariates included in analyses were age at Time 1, minority status (minority/nonminority), socioeconomic status (SES; Hollingshead, 1976) based on Hollingshead criteria, childhood sexual behavior problems, and sexual abuse status (abuse, comparison). Sexual behavior problems were measured at Time 1 using the Child Sexual Behavior Checklist (CSBC) that is a subset of items from the child sexual behavior inventory (Friedrich et al., 1992). This measure consists of 22 items, on which the mother reports the sexual behaviors of her child. The internal consistency reliability of this measure for the current sample was found to be .91. This measure has been found by Friedrich et al. (1992) to reliably differentiate sexually abused children from nonabused. Childhood sexual behavior problems were included as a covariate because sexual abuse is linked with childhood sexual behavior problems and we wanted to assure that the girls with sexual behavior problems were not unduly influencing the mean differences or associations with later sexual behaviors/attitudes.

Data Analysis

Descriptive statistics can be found in Table 1. To obtain useful scales from the observed nonverbal behaviors, the 54 items were entered into exploratory factor analysis. First, a principal components analysis was completed to discern the number of factors to be rotated. Then principal axis was used to extract the determined number of factors which were rotated to the final solution via promax. Analysis of covariance was used to examine mean differences on the nonverbal factors between the abuse and comparison groups. Covariates included age at Time 1, minority status (*minority* = 1, *nonminority* = 0), SES, and CSBC. The factors obtained were then used in linear regression analyses to examine the associations between Time 1 nonverbal behaviors and later sexual attitudes and behaviors (T4/5). Each factor was used as the independent variable with one of the SAAQ scales or age at first intercourse as the dependent variable. Covariates (Time 1 age, minority status, SES, abuse/comparison, CSBC) were entered along with the independent variable (one of the nonverbal factors).

Results

Missing Data Imputation

Missing data were imputed to obtain the maximum number of cases on each measure. First-order imputation was used for item level missingness, instances in which a particular item was not answered on a measure. The NORM (Schafer, 1999) software program was used to impute missing data for the CSBC, for which missingness did not exceed .05%.

Factor Analysis of the MicroCoded Observed Behaviors

The aim of the following analysis was to examine the underlying factor structure of the behaviors rated during the 8-min warm-up to obtain a more interpretable and feasible way to use the 54 coded behaviors. Those items with adequate variability were entered into a principal components analysis. The scree plot of the eigen values (Cattell, 1966) and

Velicer's minimum average partial test (Velicer, 1976) indicated that three factors be extracted. Subsequently, a principal axis factor method with a promax rotation to an equamax target was examined accordingly. The three-factor solution provided the best simple structure with interpretable factors. Items that did not load highly ($<.25$) on any one factor were excluded from the final solution, which was calculated on the remaining 26 items. The factor solution can be seen in Table 2.

The behaviors most highly related to Factor 1 were pouting, brows raise, side head tilt, and arms folded with no smile. These behaviors indicate uncertainty and dislike and include self-protective, submissive gestures according to Givens (1978). Accordingly, this factor was named '*wary*'. Pouting demonstrates a degree of dislike or displeasure. Side head tilt can be a sign of submission or shyness in children (McGrew, 1972) or a nervous tic motion of the head to the left or the right. Self-clasping, such as arms folded with no smile, also shows submission, but can also be self-comforting in stressful situations. The various behaviors seem to be a mixture of uncertainty, submission or shyness, and dislike, which supports the interpretation of the factor indicating wariness.

The behaviors that had the highest loadings on Factor 2 were chin rests on hand, hand touches ear and other hand, and palms up and open. Overall these indicate the individual is nonthreatening and willing to be approached (Givens, 1978); thus, this factor was labeled "*affiliative*." Patterns of hand automanipulations such as touching the face, self-grooming, and opening arms and hands show a willingness to be approached. Self-touching can also indicate a degree of anxiety; however, along with the open body postures, it seems the behaviors related to the *affiliative* factor are more friendly or affiliative in nature.

Factor 3 was determined by behaviors that were contradictory, such as tongue show and mouth open as well as knees crossed and shoulder shrug. These behaviors both discourage social contact (e.g., tongue show, knees crossed) and encourage approach (e.g., full smiling, shoulder shrug). The behavior with the strongest relationship to the factor was tongue show, which is thought to indicate distain or aversiveness and discourage social contact. However, open-mouth, the behavior with the next strongest relationship is thought to be a submissive cue, which shows that someone is approachable. The open-mouth along with arm-stretch and full smiling behaviors lend more strength to the submissive and approachable interpretation. Conversely, knees crossed and rocking motion along with tongue show might lend more support toward anxiety or defensiveness. However, when paired with the submissive and approachable behaviors, tongue show and open mouth may actually be flirtatious availability signals (Givens, 1978). Due to the seemingly conflicting behaviors, the interpretation of Factor 3 was interpreted as *coy* because the pattern seems to indicate a disorganized pattern of behaviors that may reflect both approach and avoidance signals. Factor scores were computed by linear composites of items with their primary loading on the factor. The internal consistency reliabilities of the three factors were *wary* = .75, *affiliative* = .72, and *coy* = .69.

Group Differences in Time 1 Observed Nonverbal Behaviors

Analyses of covariance were completed with abused versus comparison as the between-subjects factor and T1 age, minority status (*minority* = 1, *nonminority* = 0), and SES entered

as covariates. Results showed that after accounting for the covariates, the abuse group had significantly higher *coy* behavior than the comparison group $F(1, 133) = 4.18, p < .05$. There were no other significant group differences.

Time 1 Observed Nonverbal Behaviors and Time 4 Sexual Activities and Attitudes

Next, linear regression was used to examine whether early observed nonverbal behaviors were associated with later sexual attitudes and behavior. In these analyses, the Time 1 *wary*, *affiliative*, and *coy* behavior factors were entered as independent variables predicting Time 4/5 sexual permissiveness, sexual preoccupation, negative attitudes toward sex, pressure to engage in sex, and age at first intercourse after controlling for abuse status, childhood sexual behavior, T1 age, SES, and minority status in a series of regression equations. The results indicated that *affiliative* behavior predicted high sexual permissiveness ($\beta = .19, p < .05$) and low negative attitudes ($\beta = -.22, p < .05$). *Coy* behavior was negatively related to age at first intercourse ($\beta = -.24, p < .05$) and negative attitudes toward sex ($\beta = -.15, p < .10$) indicating those that girls who exhibited more *coy* behavior had a younger age at first intercourse.

Discussion

The purpose of this study was to examine early nonverbal behaviors to determine whether sexually abused girls exhibit different patterns of behavior than comparison girls in an interaction with a male interviewer. Additionally, the degree to which these early behaviors could predict later sexual attitudes and behaviors was examined. It was hypothesized that sexually abused girls would show more maladaptive patterns of nonverbal behavior with a male interviewer, which was supported by the finding that sexually abused girls showed significantly more *coy* behavior than comparison girls. This indicates that sexually abused females were more likely to display behaviors indicative of sexual interest *and* disinterest when interacting with male counterparts. *Coy* behavior could be considered the most maladaptive pattern of behavior, being a mix of both approach and avoidance behaviors, which may result in mixed messages sent to the individual with whom the girls are interacting. Research on physical and sexual abuse shows that individuals who experience abuse have difficulties with emotion regulation and show socially inappropriate emotional expressions (Shields & Cicchetti, 1998; Shipman, Zeman, Penza, & Champion, 2000). Thus, it may be that sexually abused girls are not consciously giving mixed signals to those they interact with, but that they simply have not developed the ability to regulate inappropriate behavior or that they cannot discern what is inappropriate in a given situation. The mismatch of behaviors may also be due to the development of maladaptive schemas for interpersonal interaction resulting from the sexual abuse.

Several studies have shown that maltreated children show either inappropriate overresponsiveness or inappropriate wariness in reaction to a stranger (Aber & Allen, 1987; Trickett, 1993). However, our results indicate that there was no difference between the sexually abused and comparison group on the wariness factor. This may be due in part to the specificity of sexual abuse and in particular because the inclusion criteria for this study indicated the condition of sexual abuse by a family member. Thus, the sexually abused girls

in this study may not have reason to distrust strange men because their abuse experience was perpetrated by a familiar male. Similarly, there was no difference on the *affiliative* factor, which indicates “appropriate friendliness.” This was also expected to differ between groups, but perhaps it may be difficult to distinguish between “appropriate” versus “inappropriate” friendliness on these behaviors.

The analyses examining the associations between early nonverbal behavior and later sexual attitudes and behavior showed that *affiliative* behavior, such as self-touch and an open physical posture, was related to high sexual permissiveness and less negative attitudes toward sex. The scale of permissiveness used in this study was comprised of items that reflected permissive attitudes toward a normative set of desires and behaviors regarding relationships and sex. This included having engaged in intimate affection, light and heavy petting, and voluntary intercourse. Although *affiliative* behavior was associated with having sexual intercourse, it was not correlated with younger age at first intercourse, whereas *coy* behavior was. Having less negative attitudes toward sex suggests a general belief that sex is a part of normal human development and is not something to be judged critically or to be embarrassed about. Taken together, *affiliative* behavior measured at the initial assessment was closely associated with an overall pattern of healthy sexual attitudes later in development. It is quite possible that a willingness to be approached during appropriate interactions with a member of the opposite sex can shape healthy sexual behaviors and attitudes that have long-term effects on overall sexual development.

The relationship between *coy* behavior and younger age at first consensual intercourse is evidence of a relatively unhealthy pattern of sexual development. Interestingly, there were no associations between *coy* behavior and sexual attitudes reflecting distortions; however, more poignant perhaps is the direct manifestation of sexually risky behavior. There is a wealth of research showing an association between younger age at sexual intercourse and other problems such as greater number of sexual partners, risk of having sex with high-risk partners, and increased risk of teenage pregnancy and of contracting sexually transmitted diseases (Greenberg, Magder, & Aral, 1992). Although many studies have shown relationships between sexual abuse and distorted cognitions regarding sex, our result held when sexual abuse was controlled for in the analysis. This strengthens the finding by showing that after accounting for the effect of sexual abuse, *coy* behavior is still associated with earlier sexual intercourse. The current findings support a link between sexual abuse and early maladaptive behaviors, which then are associated with subsequent sexually risky behavior. Specifically, sexually abused girls evidenced more *coy* behaviors, and in a separate analysis *coy* behaviors were associated with younger age at first consensual intercourse 7 years later (controlling for sexual abuse).

There are several limitations of this study that should be noted. First, there is a wide age range included in this sample. Thus, although the analyses controlled for age, the assessment of nonverbal behavior may be reflecting different developmental periods in younger versus older girls. Second, sexual attitudes and behaviors at the T4/5 assessment were obtained by self-report. There may be inherent bias in self-report especially when questions are of a sensitive nature. However, in an attempt to obtain more accurate information, computerized questionnaires were used for the sexual attitudes and behavior questions. Age at first

intercourse was collected using six response options that may not necessarily be considered a continuous variable, although it was used as such in the analyses. Lower categories indicate lower ages at intercourse and higher categories represent higher ages at intercourse, hence relationships with this variable can be interpreted consistent with linear, correlative functions. Although, this may introduce some potential bias to the results, the underlying distribution of scores resembles a continuous, normal distribution with no group differences across categories indicating that the bias introduced is minimal (Tabachnick & Fidell, 2001). Third, as is the case with all factor analysis endeavors, interpretation of the factors is subjective and without other validated measures of similar constructs to compare them to, the factors obtained here are subject to interpretation. Fourth, because we only began investigating differences in nonverbal behavior after the substantiated sexual abuse, we cannot rule out whether differences in nonverbal behaviors preceded the abuse. Finally, previous studies have shown that the characteristics of the abuse experience are important determinates of maladaptive outcomes (Trickett, Noll, Reiffman, & Putnam, 2001). In the current study, all abused girls were grouped together for analyses precluding the nuances of their abuse experience. However, there are still important distinctions that can be found when using even this rough measure of abuse experience.

In summary, females who experienced childhood sexual abuse engaged in significantly more *coy* behaviors when compared to their nonabused counterparts at 6 months after disclosure of abuse. This finding holds considerable importance in the study of sexual development with abused populations because *coy* behaviors subsequently predicted a younger age at first consensual intercourse. Additionally, *affiliative* behavior was correlated with sexual *attitudes* that indicate adaptive or healthy patterns of interpersonal interaction, whereas *coy* behavior was associated with risky sexual *behavior*. This provides a distinction between healthy/adaptive attitudes toward sex versus risky sexual behavior. Although there is evidence that sexual abuse is associated with distorted sexual attitudes and beliefs (Noll et al., 2003), sexually risky behaviors have substantial public health implications. It appears that early healthy patterns of interaction (i.e., affiliative behaviors) are related to healthy cognitions about sex later in development, whereas unhealthy or maladaptive patterns of interaction (i.e., coy behaviors) are related to sexually risky behavior. Future research should examine other characteristics such as affiliation with male peers (Noll et al., 2000) that may affect sexual behavior, as well as specific characteristics of sexual abuse. Such models may provide additional insight into the differing trajectories associated with sexual abuse and early sexual behavior.

There are important clinical implications given the novel methodology used within this prospective, longitudinal design assessing the progression of sexual behaviors over distinct developmental stages. First, the use of behavioral observation by clinicians appears to be a useful and objective measure of assessing sexualized behaviors, especially *coy* behaviors, in sexually abused populations. This methodology holds considerable advantage over other methods of assessment such as self- or parent-report in that it identified specific behaviors in one developmental stage that predicted subsequent sexualized behavior in a later developmental stage. Although there is the potential for rater error and subjectivity, behavioral observation reduces the potential for measurement error in a construct containing

potentially contradictory components. Second, *coy* behaviors significantly predicted an earlier age of first consensual sexual intercourse, thereby rendering such behaviors as important intervention targets with abused females. For abused females, early intervention may be a particularly useful strategy to set the stage for a normative trajectory of sexual behavior. In this manner, intervention during childhood may serve a preventative function that avoids such sexual behavior problems as teenage pregnancy, unprotected sexual intercourse, prostitution, and sexual aggression. There are individual differences in the timing of the manifestation of symptoms suggesting that treatment of childhood sexual abuse should continue throughout development or be revisited when issues relating to the abuse become developmentally salient (Noll, 2005). Third, direct intervention efforts should involve both the abused female and any nonabusing caregivers. Education on what constitutes sexualized behavior and the risks involved with such behavior should be undertaken with the family (Cohen, Mannarino, & Deblinger, 2006). Impulse control strategies should be reviewed with the child to teach effective means for managing sexual impulses that may place them at risk for the development of sexual behavior problems. Parents should be made aware of their child's sexualized behaviors and strategies for parents should be devised for reducing such behavior while shaping more age-appropriate sexual behaviors.

Acknowledgments

Funding

This research has been supported in part by the W.T. Grant Foundation, National Institute of Mental Health Grant MH-48330, and National Center on Child Abuse and Neglect Grant 90CA1549.

References

1. Aber JL, Allen JP. The effects of maltreatment on young children's socioemotional development: An attachment theory perspective. *Developmental Psychology*. 1987; 23:406–414.
2. Anderson BL, Cyranowski JM. Women's sexuality: Behaviors, responses, and individual differences. *Journal of Consulting and Clinical Psychology*. 1995; 63:891–906. [PubMed: 8543712]
3. Araj, S. Sexually aggressive children: Coming to understand them. Thousand Oaks, CA: SAGE; 1997.
4. Beitchman JH, Zucker KJ, Hood JE, DaCosta GA. A review of the short-term effects of child sexual abuse. *Child Abuse & Neglect*. 1991; 15:537–556. [PubMed: 1959086]
5. Berliner, L. Clinical work with sexually abused children. In: Hollin, CR.; Howells, K., editors. *Wiley series in clinical approaches to criminal behaviour*. Oxford, England: John Wiley & Sons; 1991. p. 209-228.
6. Browning CR, Laumann EO. Sexual contact between children and adults: A life course perspective. *American Sociological Review*. 1997; 62:540–560.
7. Cattell RB. The scree test for the number of factors. *Multivariate Behavioral Research*. 1966; 1:245–276.
8. Cicchetti D, Toth SL. A developmental psychopathology perspective on child abuse and neglect. *Journal of the American Academy of Child & Adolescent Psychiatry*. 1995; 34:541–565. [PubMed: 7775351]
9. Cohen, J.; Mannarino, A.; Deblinger, E. *Treating trauma and traumatic grief in children and adolescents*. NY: The Guilford Press; 2006.
10. Fergusson DM, Horwood LJ, Lynskey MT. Childhood sexual abuse, adolescent sexual behaviors and sexual revictimization. *Child Abuse & Neglect*. 1997; 21:789–803. [PubMed: 9280383]

11. Finkelhor D, Browne A. The traumatic impact of child sexual abuse: A conceptualization. *American Journal of Orthopsychiatry*. 1985; 55:530–541. [PubMed: 4073225]
12. Fisher, WA. The psychological approach to human sexuality: The sexual behavior sequence. In: Byrne, D.; Kelley, K., editors. *Alternative approaches to the study of sexual behavior*. Hillsdale, NJ: Erlbaum; 1986. p. 131-171.
13. Friedrich WN. Sexual victimization and sexual behavior in children: A review of recent literature. *Child Abuse & Neglect*. 1993; 17:59–66. [PubMed: 8435787]
14. Friedrich WN, Grambsch P, Damon L, Hewitt SK, Koverola C, Lang RA, et al. Child sexual behavior inventory: Normative and clinical comparisons. *Psychological Assessment*. 1992; 4:303–311.
15. Friedrich WN, Luecke WJ. Young school-age sexually aggressive children. *Professional Psychology: Research and Practice*. 1988; 19:155–164.
16. Gale J, Thompson RJ, Moran T, Sack WH. Sexual abuse in young children: Its clinical presentation and characteristic patterns. *Child Abuse & Neglect*. 1988; 12:163–170. [PubMed: 3395892]
17. Givens DB. The nonverbal basis of attraction: Flirtation, courtship, and seduction. *Psychiatry: Journal for the Study of Interpersonal Processes*. 1978; 41:346–359.
18. Givens, DB. *Love signals*. NY: Crown Publishers, Inc.; 1983.
19. Goldston DB, Turnquist DC, Knutson JF. Presenting problems of sexually abused girls receiving psychiatric services. *Journal of Abnormal Psychology*. 1989; 98:314–317. [PubMed: 2768667]
20. Greenberg J, Hennessy M, Lifshay J, Kahn-Krieger S, Bartelli D, Downer A, et al. Childhood sexual abuse and its relationship to high-risk behavior in women volunteering for an HIV and STD prevention intervention. *AIDS and Behavior*. 1999; 3:149–156.
21. Greenberg J, Magder L, Aral S. Age at first coitus. A marker for risky sexual behavior in women. *Sexually Transmitted Diseases*. 1992; 19:331–334. [PubMed: 1492259]
22. Haynes-Seman C, Krugman RD. Sexualized attention: Normal interaction or precursor to sexual abuse? *American Journal of Orthopsychiatry*. 1989; 59:238–245. [PubMed: 2712157]
23. Hollingshead, AF. *Four factor index of social status: Manual*. New Haven, CT: Department of Sociology, Yale University; 1976.
24. Johnsen LW, Harlow LL. Childhood sexual abuse linked with adult substance use, victimization, and AIDS risk. *AIDS Education and Prevention*. 1996; 8:44–57. [PubMed: 8703640]
25. Kelly AB, Halford WK, Young RM. Couple communication and female problem drinking: A behavioral observation study. *Psychology of Addictive Behaviors*. 2002; 16:269–271. [PubMed: 12236464]
26. Lemieux SR, Byers ES. The sexual well-being of women who have experienced child sexual abuse. *Psychology of Women Quarterly*. 2008; 32:126–144.
27. LePage JP, Mogge NL. The behavioral observation system (BOS): A line staff assessment instrument of psychopathology. *Journal of Clinical Psychology*. 2001; 57:1435–1444. [PubMed: 11745586]
28. Lodico MA, DiClemente RJ. The association between childhood sexual abuse and prevalence of HIV-related risk behaviors. *Clinical Pediatrics*. 1994; 33:498–502. [PubMed: 7955793]
29. Lodico MA, Gruber E, DiClemente RJ. Childhood sexual abuse and coercive sex among school-based adolescents in a midwestern state. *Journal of Adolescent Health*. 1996; 18:211–217. [PubMed: 8777197]
30. Mausert-Mooney R. *Appeal and vulnerability patterns in girl victims of incest*. Dissertation Abstracts International. 1993; 53:37.
31. Mayall A, Gold SR. Definitional issues and mediating variables in the sexual revictimization of women sexually abused as children. *Journal of Interpersonal Violence*. 1995; 10:26–42.
32. McGrew, WC. Aspects of social development in nursery school children with emphasis on the introduction to the group. In: Blurton Jones, NG., editor. *Ethological Studies of Child behavior*. Cambridge: University Press; 1972. p. 129-156.
33. Messman TL, Long PJ. Child sexual abuse and its relationship to revictimization in adult women: A review. *Clinical Psychology Review*. 1996; 16:397–420.

34. Noll JG. Does childhood sexual abuse set in motion a cycle of violence against women? What we know and what we need to learn. *Journal of Interpersonal Violence*. 2005; 20:455–462. [PubMed: 15722501]
35. Noll JG, Trickett PK, Putnam FW. Social network constellation and sexuality of sexually abused and comparison girls in childhood and adolescence. *Child Maltreatment*. 2000; 5:323–337. [PubMed: 11232260]
36. Noll JG, Trickett PK, Putnam FW. A prospective investigation of the impact of childhood sexual abuse on the development of sexuality. *Journal of Consulting and Clinical Psychology*. 2003; 71:575–586. [PubMed: 12795580]
37. Parks KA, Hequembourg AL, Dearing RL. Women's behavior when meeting new men: The influence of alcohol and sexual abuse. *Psychology of Women Quarterly*. 2008; 32:145–158. [PubMed: 18668186]
38. Pithers WD, Gray A. The other half of the story: Children with sexual behavior problems. *Psychology, Public Policy, and Law*. 1998; 4:200–217.
39. Polusny MA, Follette VM. Long-term correlates of child sexual abuse: Theory and review of the empirical literature. *Applied and Preventive Psychology*. 1995; 4:143–166.
40. Randolph ME, Mosack KE. Factors mediating the effects of childhood sexual abuse on risky sexual behavior among college women. *Journal of Psychology & Human Sexuality*. 2006; 18:23–41.
41. Redfearn AA, Laner MR. The effects of sexual assault on sexual attitudes. *Marriage & Family Review*. 2000; 30:109–125.
42. Schafer JL. NORM: Multiple imputation of incomplete multivariate data under a normal model (Version 2.0). 1999 <http://www.stat.psu.edu/~jls/misoftwa.html>.
43. Senn TE, Carey MP, Venable PA, Coury-Doniger P, Urban MA. Childhood sexual abuse and sexual risk behavior among men and women attending a sexually transmitted disease clinic. *Journal of Consulting and Clinical Psychology*. 2006; 74:720–731. [PubMed: 16881780]
44. Silovsky, JF.; Bonner, BL. Children with sexual behavior problems. In: Ollendick, TH.; Schroeder, CS., editors. *Encyclopedia of clinical child and pediatric psychology*. NY: Kluwer; 2003. p. 589–591.
45. Silovsky JF, Niec L. Characteristics of young children with sexual behavior problems: a pilot study. *Child Maltreatment*. 2002; 7:187–197. [PubMed: 12139187]
46. Silovsky JF, Niec L, Bard D, Hecht DB. Treatment for preschool children with interpersonal sexual behavior problems: A pilot study. *Journal of Clinical Child and Adolescent Psychology*. 2007; 36:378–391. [PubMed: 17658982]
47. Simons RL, Whitbeck LB. Sexual abuse as a precursor to prostitution and victimization among adolescent and adult homeless women. *Journal of Family Issues*. 1991; 12:361–379.
48. Springs F, Friedrich WN. Health risk behavior and medical sequelae of child sexual abuse. *Mayo Clinic Proceedings*. 1992; 67:527–532. [PubMed: 1434879]
49. Tabachnick, BG.; Fidell, LS. *Using Multivariate Statistics*. 4th. Needham Heights, MA: Allyn & Bacon; 2001.
50. Trickett PK. Maladaptive development of school-aged, physically abused children: Relationships with the child-rearing context. *Journal of Family Psychology*. 1993; 7:134–147.
51. Trickett PK, Noll JG, Reiffman A, Putnam FW. Variants of intrafamilial sexual experience: Implications for short- and long-term development. *Development and Psychopathology*. 2001; 13:1001–1019. [PubMed: 11771904]
52. Trickett PK, Putnam FW. Impact of child sexual abuse on females: Toward a developmental, psychobiological integration. *Psychological Science*. 1993; 4:81–87.
53. Trickett, PK.; Putnam, FW. Developmental consequences of child sexual abuse. In: Trickett, PK.; Schellenbach, C., editors. *Violence against children in the family and the community*. Washington, DC: American Psychological Association; 1998. p. 39–56.
54. Udry, R. *The Sexual Activity Questionnaire for Girls and Boys*. Chapel Hill: University of North Carolina; 1988.
55. Velicer WF. Determining the number of components from the matrix of partial correlations. *Psychometrika*. 1976; 41:321–327.

56. Wilsnack SC, Vogeltanz ND, Klassen AD, Harris TR. Childhood sexual abuse and women's substance abuse: National survey findings. *Journal of Studies on Alcohol*. 1997; 58:264–271. [PubMed: 9130218]
57. Wingood GM, DiClemente RJ. Child sexual abuse, HIV sexual risk, and gender relations of African-American women. *American Journal of Preventive Medicine*. 1997; 13:380–384. [PubMed: 9315271]
58. Wolfe VV, Gentile C, Michienzi T, Sas L. The children's impact of traumatic events scale: A measure of post-sexual-abuse PTSD symptoms. *Behavioral Assessment*. 1991; 13:359–383.

Biographies

Jennie G. Noll, University of Cincinnati College of Medicine and Children's Hospital Medical Center, Division of Behavioral Medicine and Clinical Psychology and the Center for Epidemiology and Biostatistics, MLC 3015, 3333 Burnett Ave, Cincinnati, OH 45229; jennie.nollcchmc.org.

Chad E. Shenk, Cincinnati Children's Hospital Medical Center, Division of Behavioral Medicine and Clinical Psychology, MLC 3015, 3333 Burnett Ave, Cincinnati, OH 45229; chad.shenkcchmc.org.

Frank W. Putnam, Cincinnati Children's Hospital Medical Center, Mayerson Center for Safe and Healthy Children, MLC 3008, 3333 Burnett Ave, Cincinnati, OH 45229; frank.putnamcchmc.org.

Penelope K. Trickett, University of Southern California, School of Social Work, University Park, MRF 313, Los Angeles, CA 90089; pennytusc.edu.

Table 1

Demographic Variables for Time 1 and Time 4/5

	Total	Sexually Abused	Comparison
Time 1	<i>N</i> = 133	<i>n</i> = 71	<i>n</i> = 62
Age: <i>M</i> (<i>SD</i>)	11.01 (3.04)	11.32 (2.97)	10.65 (3.10)
SES: <i>M</i> (<i>SD</i>)	34.91 (12.52)	34.87 (13.72)	34.96 (11.09)
Percentage minority	50.6	38.0*	64.5*
<i>Time 4/5^a</i>	<i>N</i> = 144	<i>n</i> = 77	<i>n</i> = 67
Age: <i>M</i> (<i>SD</i>)	18.52 (3.52)	18.87 (3.57)	18.12 (3.44)
SES: <i>M</i> (<i>SD</i>)	34.90 (12.65)	36.24 (13.56)	34.48 (11.43)
Percentage minority	52.1	40.3	65.7
SAAQ permissiveness: <i>M</i> (<i>SD</i>)	46.02 (15.11)	46.26 (15.59)	45.74 (15.31)
SAAQ preoccupation: <i>M</i> (<i>SD</i>)	37.74 (11.78)	40.53 (12.41)*	35.37 (10.90)*
SAAQ negative attitudes: <i>M</i> (<i>SD</i>)	20.10 (6.50)	20.14 (6.61)	20.00 (6.34)
SAAQ Pressure to engage in sex: <i>M</i> (<i>SD</i>)	28.82 (6.83)	29.29 (7.56)	28.36 (6.05)
Age at first intercourse ^b : <i>n</i> (%)			
12 years or younger	8 (6.7)	5 (7.6)	3 (5.6)
13–14 years old	41 (34.2)	26 (39.4)	15 (27.8)
15–16 years old	50 (41.7)	28 (42.4)	22 (40.7)
17 years or older	21 (17.5)	7 (10.6)	14 (26.0)

Note: Fourteen participants in the comparison group who disclosed abuse after inclusion in the study were removed; *M* = mean; SAAQ = sexual activities and attitudes questionnaire; *SD* = standard deviation; SES = socioeconomic status.

^aIncludes 15 participants whose did not complete T4 but returned at T5.

^bUsed as a continuous variable in analyses.

Logistic regression and analysis of covariance were used to test significant group differences.

* $p < .05$ (for both Analysis of covariance (ANCOVA) and logistic regression).

Table 2

Factor Structure and Loadings for Microcoded Behaviors

Behavior	Factor 1	Factor 2	Factor 3	Average Measure ICC
Factor 1-wary				
Pouting	.84	.00	.05	.80
Brows raise	.69	.03	−.08	.96
Sidehead tilt	.66	<u>.26</u>	.09	.97
Arms folded (no smile)	.50	−.01	.00	.82
Mouth Compressed	.47	.02	.08	.97
Eyes Sweep To and Fro	.45	<u>.43</u>	.13	.91
Steady Gaze	.38	.18	<u>.26</u>	.93
Spacing Out	.26	.09	−.05	.97
Factor 2-affiliative				
Chin rests on hand	.15	.73	.01	.99
Hand touches ear	.02	.54	.04	.97
Hand touches other hand	<u>.31</u>	.47	<u>.25</u>	.99
Palms up and open	.03	.47	<u>.34</u>	.74
Hand touches lower leg	<u>.24</u>	.47	.10	.95
Hand touches face	.06	.45	.19	.97
Hand touches neck	.01	.44	−.05	.85
Leans toward other	.06	.37	.14	.97
Mouth covered	−.03	.31	.09	.73
Legs not close together	−.01	.30	−.05	.99
Factor 3-coy				
Tongue show	.04	.09	.55	.98
Mouth open	.03	.15	.55	.92
Rocking motion	.07	.01	.54	.97
Knees crossed	−.01	−.06	.47	.99
Full smiling	.14	.08	.45	.85
Arm stretch	−.03	.06	.44	.85
Shoulder shrug	.02	.05	.37	.95
Head tips forward	−.03	.13	.34	.92

Note: Primary loadings are in bold, hyperplane loadings are underlined. ICC = intraclass correlation coefficient.