Influence of Thumb Sucking on Peer Social Acceptance in First-Grade Children

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ABSTRACT. Chronic thumb sucking in school-age children may reduce peer social acceptance, an important contributor to social development. The influence of thumb sucking on social acceptance was assessed among 40 first-grade children, who were shown four slides of two 7-year-old children (one boy, one girl) in two poses (one thumb sucking, one not). After viewing each slide in their classrooms, the children answered 10 numerically weighted questions related to peer acceptance. To limit the possibility that the children would determine the girl and boy were the same in each pose, the slide presentation was counterbalanced across two sessions 1 week apart. Using a repeated-measures analysis of variance, the authors compared composite scores on each question for both poses. The results indicate that while in the thumb-sucking pose, the children were rated as significantly less intelligent, happy, attractive, likable, and fun and less desirable as a friend, playmate, seatmate, classmate, and neighbor than when they were in the non–thumb-sucking pose. These findings suggest that the risk of reduced social acceptance should be added to the list of potentially harmful effects of chronic thumb sucking in school-age children. *Pediatrics* 1993;91:784–786; *thumb sucking, school-age children, social acceptance, habits, social development.*

ABBREVIATION. ANOVA, analysis of variance.

Thumb sucking is common, harmless, and sometimes even healthful in very young children and less common but also usually harmless in older children whose habit is simple (ie, confined to home practice).[1–4] Chronic thumb sucking—practiced at home and in other environments—can lead to harmful outcomes in older children, however. Among the outcomes that have been empirically documented are malocclusion, digital malformation, and increases in other habits such as hair pulling.[5–9] One frequently mentioned but never empirically demonstrated outcome is reduced peer social acceptance.

Children's acceptance by peers is an important determinant of their social development.[10,11] When children are socially rejected, they are at risk for a range of emotional and social problems.[11–13] Whether a child is accepted or rejected by peers is significantly influenced by the presence of childhood problems.[14–19] Problems especially linked to rejection are those peers view as self-controllable.[15,17,19]

Whether children view thumb sucking as a self-controllable problem has not been reported. But the relevant literature distinguishes uncontrollable problems by emphasizing conditions such as diseases or disabilities that individuals did not cause and cannot control.[14,16,17] Controllable problems are generally described as volitional acts, such as aggression, or the apparent result of volitional acts, such as obesity.[17,19,20] Because thumb sucking is ostensibly a volitional act, it seems safe to assume that children view it as a controllable problem. As such, thumb sucking may pose a risk of peer rejection to its public practitioners. The purpose of this study is to evaluate the influence of thumb sucking on peer social acceptance in first grade, an extremely important year in the development of peer relations.

METHOD

Participants and Setting

Forty first-grade students, 20 boys and 20 girls, participated in the study. The participants' ages ranged from 6 to 8 years, and they were enrolled in regular classrooms in predominately white, middle-class elementary schools. The study was approved by an Institutional Review Board and informed parental consent was obtained for all participants.

Procedure

Participants rated slides of children sucking their thumbs along two dimensions as noted below. In preparation for their participation, students were read a brief description of the study and provided four practice questions and answers in a format identical with that subsequently used for actual data collection. The children's procedural questions were addressed and clarified throughout the study.

Slides. Slide presentation was counterbalanced across two sessions, 1 week apart. In the first session participants viewed a boy in a thumb-sucking pose and a girl in a nonsucking pose. In the second session they viewed the boy in a nonsucking pose and the girl in a thumb-sucking pose. The boy and girl were 7 years of age and were in the first grade. The slides showed only the face, neck, and shoulders of each child. The use of the same boy and girl for the thumb-sucking and non–thumb-sucking slides controlled for potentially confounding factors such as ethnicity and general appearance. Written parental consent and verbal child assent were obtained before pictures were taken.

Instrument. After viewing each slide, students answered 10 questions regarding social and physical features of each child (how intelligent? happy? attractive? likable? fun? desirable as a friend? playmate? seatmate? classmate? neighbor?). The questions were derived from the literature on peer acceptance in children and were designed to assess aspects of that construct.[14,16,18,21] For each question there were three possible answers arranged in Likert

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scale fashion (ie, each answer had a numerical value of 1, 2, or 3). Each of the answers was accompanied by either of two pictographic cue sequences. The first sequence involved a man with his arms spread far apart, just apart, or behind his back. This sequence was used to answer questions such as "How much do you like this person?" (a lot—arms far apart; a little—arms just apart; not at all—arms behind back). The other sequence involved happy, neutral, or sad faces. It was used to answer questions such as "How happy do you think this person is?" (very happy—happy face; sort of happy—neutral face; not happy—sad face).

Positive responses (eg, "like a lot," "very happy") were scored as "3," neutral responses (eg, "a little," "sort of happy") were scored as "2," and negative responses (eg, "not at all," "not happy") were scored as "1." For the analysis, totals for each question were added.

A preliminary analysis of questionnaire items yielded an inter-item Pearson product-moment correlation matrix with coefficients ranging from .27 to .77 with 75% of the coefficients falling in the .5 to .7 range. An evaluation of the internal consistency of the questionnaire yielded Chronbach's α coefficients ranging from .92 for boys across both administrations to .94 for girls. Combined α was .93. Because of the significant relationship between items and the high level of internal consistency of the questionnaire as a whole, succeeding analyses were performed using data collapsed across all 10 questionnaire items.

The overall peer acceptance ratings of thumb sucking and non-thumb-sucking children were analyzed using a 2 × 2 × 2 repeated-measures analysis of variance (ANOVA), with sex of student raters, pose (sucking, non-sucking), and sex of the child in the slide as variables. The final analysis was computed using the four composite scores for each of the four slides given by each of the 40 raters.

RESULTS

The mean composite scores are summarized in the Table. There were significant main effects for both the sex of the student rater ($F = 4.30$ [df 1,38], $P < .0449$) and the pose of the child in the slide ($F = 32.91$ [df 1,38], $P < .0001$). These data suggest that boy and girl raters' scores differed with sex, providing more positive scores when rating same-sex children and more negative scores when rating children sucking their thumb(s). There was not, however, a significant main effect for sex of the child presented in the slides ($F = 2.89$ [df 1,38], $P < .097$).

Further results of the ANOVA indicate a significant three-way interaction and one two-way significant interaction. The three-way interaction of the variables sex of the child in slide x, pose of the child in slide x, and sex of the rater was significant at the $P < .0461$ level ([df 1,38], $F = 4.25$). The two-way interaction between the variables sex of the child in slide x and sex of the student rater was significant at the $P < .0001$ level ([df 1,38], $F = 28.06$). The remaining interactions were not significant.

Post hoc analyses from the ANOVA revealed that overall, boy raters rated the posed boy, in either pose, higher (more positive) than girls rated the posed boy in either pose (see Table 3). Girl raters rated the posed girl higher than they did the posed boy, regardless of pose. Girl ratings of the posed boy were not significantly different by pose (ie, they were uniformly low). But girl ratings of the posed girl were significantly different by pose. In summary, same-sex raters rated members of their own gender higher regardless of pose. However, boy and girl raters also rated posers of their own gender significantly more negatively when they were in a thumb-sucking pose. On the one hand, boy raters rated the posed boy and girl significantly more negatively when they were in the thumb-sucking pose. On the other hand, girl raters rated posed girls significantly more negatively when they were in the thumb-sucking pose but were equally negative in their ratings of the posed boy in either pose.

DISCUSSION

The results of this study suggest that first-grade children find their thumb-sucking peers less acceptable than their non–sucking peers. Forty first-grade children rated slides of thumb-sucking peers significantly and substantially less favorably than slides of the same peers not sucking their thumbs. While in the thumb-sucking pose, the peer was rated as significantly less intelligent, happy, attractive, likable, and fun and less desirable as a friend, seatmate, classmate, playmate, and neighbor than when they were in the non–thumb-sucking pose. The significant factors in the three-way interaction (sex of rater and pose of the child in the slide) suggest that gender influenced ratings. That is, boys and girls rated their same-sex peers as more acceptable than opposite-sex peers, which is consistent with the well-established finding that young school-age children prefer same-sex peers.[22,23] The analysis did not yield significant differences between peer ratings of thumb-sucking boys and girls: first graders rate both boy and girl thumb suckers negatively.

These findings extend the literature relevant to pediatric clinical practice that documents the potentially harmful effects of chronic thumb sucking and indicates a need for treatment.[5–9] Our results provide empirical support for the assertion that school-age children may socially reject their thumb-sucking peers. It follows that when a school-age child sucks his/her thumb publicly, treatment is called for. The potential for peer rejection is of sufficient concern to warrant treatment, irrespective of other unhealthful outcomes.

Our findings also extend the literature on peer acceptance in general. This literature indicates that preschool and school-age children can be intolerant of problems in their peers, including handicapping conditions, obesity, hyperactivity, and aggression.[14–19] Thumb sucking may now be added to this list. Observations of informal child verbal (eg, "sissy"

TABLE. Mean Composite Scores of Social Acceptance for Pose and Gender of Child in Slide

Gender/Thumb-Sucking Pose	Boy Rater		Girl Rater		Combined	
	Mean	SD	Mean	SD	Mean	SD
Boy sucking	17.00	6.28	17.70	5.01	17.35	5.65
Boy not sucking	22.65	6.92	17.60	4.76	20.13	5.84
Girl sucking	14.85	5.69	19.65	4.77	17.25	5.23
Girl not sucking	19.25	6.06	26.45	3.06	22.85	9.12

"baby") and nonverbal (frowning, turning away) behavior underscored the children's negative regard for thumb suckers.

One potential limitation of this study is the instrument. Although many of its psychometric properties are unknown, its items were drawn from other studies on peer acceptance[14,16,18,21] and it has high face validity and internal consistency. Thus it seems likely that the instrument was measuring aspects of peer acceptance. Another potential limitation is that our results reflect children's judgments about their thumb-sucking peers and not their actions toward those peers. Additional research on peer response to thumb sucking is needed to determine the extent of correspondence between negative judgments and related actions. Finally, our study is limited by a relatively small sample size (N = 40). Additional research with larger groups in diverse settings is needed to establish the generality of our findings.

In addition to research addressing potential limitations of this study, there is a need for research on important related topics. For example, what is the optimal treatment regimen for the school-age thumb-sucking child? Guidelines for the pediatrician have been published,[1,3,4] but their efficacy with school-age children in pediatric clinics has not been established. There are additional unanswered questions about social acceptance by individuals other than peers (eg, teachers, parents, siblings). It is also important to determine the effect reduced social acceptance has on the habit itself (eg, does social rejection increase thumb sucking?). Studies on these issues could yield additional information for the health care of school-age thumb-sucking children. This study indicates that public thumb sucking in school-age children is an important health care concern because of its potentially detrimental effect on social acceptance.

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