

Teaching Pediatric Residents to Assess Adolescent Suicide Risk With a Standardized Patient Module

AUTHORS: Elise M. Fallucco, MD,^a Mark D. Hanson, MD, MEd,^b and Anne L. Glowinski, MD, MPE^a

^aDepartment of Psychiatry, School of Medicine, Washington University, St Louis, Missouri; and ^bDepartment of Psychiatry, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada

KEY WORDS

adolescent suicide risk assessment, standardized patient, pediatric residency

ABBREVIATIONS

SRA—suicide risk assessment

SP—standardized patient

AAP—American Academy of Pediatrics

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Address correspondence to Elise M. Fallucco, MD, Washington University, Department of Psychiatry, 660 South Euclid Ave, Campus Box 8134, St Louis, MO 63110. E-mail: fallucce@psychiatry.wustl.edu

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WHAT'S KNOWN ON THIS SUBJECT: The AAP recommends routine screening of adolescents for suicide risk factors, but studies suggest inadequate pediatrician performance in SRA. Systematic pediatric residency training in SRA has not been implemented.



WHAT THIS STUDY ADDS: This study suggests that implementation of the AAP suicidality screening mandate can become feasible only in the context of changes in pediatric education. It also provides pilot data about a novel module that could be used to facilitate such changes.

abstract



OBJECTIVE: We hypothesized that a suicide risk assessment (SRA) training module incorporating standardized patients (SPs) would enhance pediatric resident SRA performance.

METHODS: We conducted an educational survey of pediatric residents regarding SRA ($N = 80$). In addition, we tested the performance of a SRA training module among pediatric interns who received SRA practice with SPs simulating suicidality scenarios, with ($n = 6$) or without ($n = 6$) SRA lecture, or SRA lecture only ($n = 12$) and control interns ($n = 10$). We examined postintervention confidence in SRA and self-reported and objectively measured knowledge of suicidal risk factors.

RESULTS: Resident confidence and knowledge regarding SRA were low, compared with assessment of medical illness. Interns in the SP plus lecture group had significantly greater confidence in screening adolescents for suicide risk factors and assessing suicidal adolescents (screening, 4.2 ± 0.4 ; assessing, 4.2 ± 0.4), compared with subjects in either the lecture-only (screening, 2.9 ± 0.8 ; $P = .005$; assessing, 2.9 ± 1.1 ; $P = .01$) or control (screening, 3.1 ± 0.7 ; $P = .025$; assessing, 2.6 ± 0.8 ; $P = .003$) group. In addition, only the SP plus lecture group demonstrated significantly greater objective knowledge of suicide risk factors (92% vs 25% correct; $P = .008$) than the control group. Neither the lecture-only group nor the SP-only group was significantly better than the control group in terms of knowledge or confidence relevant to SRA.

CONCLUSION: This SRA training module was significantly more effective than lecture alone in enhancing pediatric intern knowledge and confidence in SRA. *Pediatrics* 2010;125:953–959

In the United States, suicide has been the third leading cause of death among adolescents for the past 3 decades,¹ accounting for ~11.5% of total deaths (~3000 adolescents aged 12–21 in 2006).¹ One in 7 US teens seriously considers suicide and 1 in 14 attempts suicide each year.²

Improved youth suicide prevention through primary care screening is theoretically possible, because most adolescents visit their primary care physician annually³ and studies suggest that many suicidal adolescents visit their primary care provider in the month preceding suicidal behavior.^{4,5} In fact, the American Academy of Pediatrics (AAP) now recommends that pediatricians screen adolescents “in routine history taking” for suicide risk factors.⁶ With appropriate training, early identification of detectable and modifiable risk factors (eg, depression, anxiety, access to lethal weapons, and substance abuse)^{7–9} presents a major prevention opportunity.

Of significant concern, however, is the evidence for inadequate suicide risk assessment (SRA) training for pediatricians. Few primary care providers routinely screen adolescents for suicidality¹⁰ or suicide risk factors.¹¹ Currently, there is no mandated training in child and adolescent psychiatry, including SRA training, during pediatric residency.¹² The question of what methods to use to train pediatric residents successfully is critical to the implementation of universal SRA screening but has no answer in the extant literature. Traditional didactic training through lectures alone has shown mixed results. For example, one lecture-based program for general practitioners demonstrated minimal improvement in provider identification of adolescent depression,¹³ and another such program for general practitioners, to recognize suicidal ideation, was associated with moderately

increased inquiries about suicidal ideation.¹⁴ In contrast, an extensive curriculum for pediatric residents using patient-based learning encounters, a traditionally essential component of clinical training, demonstrated improved confidence in the treatment of adolescent depression.¹⁵ A substitute, in the absence of patient-based encounters, involves the use of standardized patients (SPs), that is, trained actors portraying patient scenarios.¹⁶ SPs have been effective in teaching adolescent psychosocial interviewing skills¹⁷ and adolescent violence screening.¹⁸ However, little is known about SP educational efficacy in training adolescent SRA.

The goals of our study were to perform an educational survey of pediatric residents, assessing confidence in SRA, and to evaluate a novel SRA educational module using SPs. Our hypothesis was that this SRA module would be associated with greater clinical confidence and knowledge relevant to SRA, in comparison with traditional didactic training through lectures alone.

METHODS

Study Design and Participants

The target sample for the educational survey consisted of all pediatric residents at a tertiary-care teaching hospital. Pediatric interns were chosen for the SRA module because of residency scheduling logistics. Resident participation was supported by the chief residents and training director in pediatrics. All participant surveys were confidential. The study was approved by the Human Research Protection Office at Washington University.

Educational Survey

A survey was designed in collaboration with a team of experts in child and adolescent psychiatry, pediatrics, and educational research. The survey included questions about confidence

assessing adolescents with common acute and chronic medical and psychiatric problems and attitudes about mental illness. Self-rated confidence and knowledge were assessed by using a 5-point Likert scale. Objective knowledge was assessed by using 2 multiple-choice questions about suicide risk factors. The survey (published as supporting information at www.pediatrics.org/content/full/125/5/953) was distributed twice, first before the SRA lecture in September 2008 and then between November 2008 and February 2009 (after the SRA module).

Formative SRA Module

A group of 12 of 34 interns was selected, on the basis of the residency rotation schedule, to participate in the SRA module, including a SRA lecture and SRA SP session. All 12 interns participated in the SP session, but only 6 were able to attend the lecture beforehand; this yielded 2 SP groups, namely, SP training plus lecture ($n = 6$) and SP training alone ($n = 6$). Interns not preselected for the entire SRA module were assigned to the 2 remaining arms on the basis of lecture attendance, that is, either lecture alone ($n = 12$) or control (default absence of exposure to lecture and SP training; $n = 10$).

SP Scenario Development and SP Preparation

The authors developed 2 adolescent clinical scenarios with ≥ 1 key risk factor for suicide. Clinical setting face validity was evaluated by pediatrics and adolescent medicine faculty members. Adolescent-appearing, adult SPs and not adolescent SPs were recruited, because the SP program did not routinely employ adolescents. The SPs, 2 male and 2 female, white, young adults (age range: 21–26 years), were professional actors with previous SP examination experiences. SPs were trained in a 4-hour session by a team consist-

ing of a child and adolescent psychiatrist, a professional SP trainer, and the SP program director. In addition, all program SPs had learned a standard protocol for giving resident-level verbal feedback, from the perspective of their character, about communication skills. Each clinical scenario was portrayed by 2 different SPs. Training consisted of education about adolescent suicide and associated risk factors, discussion of relevant mental status examination features, and rehearsal of mock interviews, with oral feedback from the SP training team about role portrayal.

Notably, scenario development, SP preparation, and debriefing aimed to minimize potential suicide contagion effects among SPs.¹⁹ SPs were informed before the simulation of the potential risk of suicide contagion with suicidality simulations. SPs were debriefed after the simulation as a group and individually by a child and adolescent psychiatrist. These SP safeguards are warranted because young adults (up to 24 years of age) are at risk for suicide contagion.²⁰ SPs were not screened regarding their suicide risk factors before the simulation, because the utility of such screening awaits further research.¹⁹

SRA SP Session

The 1-hour, videotaped, SRA SP component took place in the SP suite on the hospital campus. Interns were oriented to the logistics of the SP session for 15 minutes and then were assigned randomly to 1 of the 2 clinical scenarios. Each teaching room door had a note listing a presenting problem (that is, “17-year-old boy brought for his first urine drug screen after his mother found marijuana in his room” or “16-year-old female with low mood and decline in academic performance”). Interns were instructed to practice a SRA within a 10-minute SP interview. After the interview, SPs and interns completed

computerized, self-assessment checklists rating their performance, for 10 minutes. Then SPs provided formative oral feedback to the interns for 10 minutes. Each SP performed 3 interviews, with feedback provision, over the course of 180 minutes. A 20-minute debriefing session with all interns was conducted by 2 child and adolescent psychiatrists.

SRA Lecture

Pediatric resident SRA educational needs were determined by interviewing current and recently graduated residents and key pediatrics and adolescent medicine faculty members. Similar to findings from a national survey of pediatricians in practice,²¹ the converging consensus was that pediatric residents had limited mental health training in general and would benefit from learning practical strategies for adolescent SRA. Specifically, pediatricians requested an algorithm, if possible. The lecturer (an award-winning teacher) incorporated these ideas by developing an acronym-based algorithm (AFRAID where A = affective/anxiety disorder, F = family conflict, R = revolver, A = attempt history, I = impulsive aggression, D = drugs/alcohol) for the evaluation and management of key, evidence-based, adolescent suicide risk factors (Fig 1). Residents were provided with an algorithm pocket-card. All residents were encouraged, via e-mail messages from their chief residents, to attend the 50-minute SRA lecture, which occurred at the same place and time as their regularly scheduled, residency didactic sessions.

SRA Module Effect

To evaluate the effects of the SRA module, the educational survey was used. The original intent was to survey all intern participants in the SP arm before the intervention. After the SP session, however, it was determined that 6 of those 12 SP participants had not attended the lecture as planned. We present evaluative data in 2 formats, that

is, a postintervention format for all interns ($N = 34$) and a preintervention/postintervention format for the SP plus lecture group versus the lecture-only group ($n = 12$). Lack of baseline data for the control and SP-only groups precluded further before/after comparisons. Primary outcome variables included postintervention self-rated confidence in assessing patients with suicidal thoughts, phrased as, “I feel confident in my ability to assess adolescents with suicidal thoughts without previous suicide attempt(s),” self-rated confidence in assessing patients for suicide risk factors, phrased as, “I feel confident in my ability to screen adolescents for risk factors for suicide,” self-rated knowledge of suicide risk factors, and objective scores on 2 factual knowledge questions about suicide risk factors (reflecting material presented both at the lecture and at the SP session).

Statistical Analyses

Mean scores were calculated at baseline and then after the study for each variable. Educational survey baseline characteristics in intern subgroups were compared by using 1-way analysis of variance. Postintervention differences between the 4 intern groups were analyzed by using a 2×2 (SP session yes/no \times lecture yes/no) analysis of variance, with Tukey-Kramer adjustments for multiple comparisons. To determine the changes from baseline to after the educational intervention, paired t tests were performed for the lecture-only group and the SP session plus lecture group. Statistical significance was determined by using $P < .05$. Statistical analyses were performed by using SAS 9.1 (SAS Institute, Cary, NC).

RESULTS

Participation Rates

For the educational survey, 29 (33%) of the total 87 pediatric residents attended the SRA lecture, where they

Adolescent Suicide Risk Factors (AFRAID) ^a	Screening Questions	Management Strategies ^b
Affective/Anxiety disorder	How are you feeling? Have you lost interest in things you used to enjoy doing? If low mood or interest, ask about other depression symptoms. Do you worry often?	+/- Psychotherapy +/- SSRI ^c
Family conflict	How are things at home? Can you talk with your parents?	+/- Family-based intervention +/- Psychotherapy
Revolver	Is there a gun in the home? Is it locked? Loaded?	Remove, lock, unload
Attempt history	Have you ever tried to kill yourself?	+/- Psychotherapy
Impulsive aggression	Do you get into physical fights at home/school/ elsewhere?	+/- Family-based intervention +/- Psychopharmacological intervention
Drugs/Alcohol	Do you (or your friends) use?	Counseling +/- Substance abuse treatment

^a AFRAID acronym refers to A = Affective/Anxiety disorder, F = Family conflict, R = Revolver, A = Attempt history, I = Impulsive aggression, D = Drugs/alcohol

^b For all risk factors, psychiatry or other mental health consultation may be indicated.

^c SSRI = Selective Serotonin Reuptake Inhibitor

FIGURE 1

Risk factors for adolescent suicide. SSRI indicates selective serotonin reuptake inhibitor.

completed the survey, whereas 80 (92%) of the total 87 pediatric residents (interns, $n = 34$ [100%]; second-year residents, $n = 24$ [89%]; third-year residents, $n = 22$ [85%]) completed postintervention surveys. Because of the higher participation rate, results from the postintervention surveys are presented in Table 1.

Educational Survey

Table 1 presents results from the postintervention educational survey for the resident sample. Most residents endorsed interest in child and adolescent psychiatry. Each resident cohort reported much less confidence (on a scale of 1 = very low to 5 = very high) in assessing adolescents with psychiatric illness, in comparison with medical illness. Whereas senior residents reported very high mean confidence in assessing adolescents with medical illness (acute, score: 4.5 ± 0.6 ; chronic, score: 4.2 ± 0.5), their mean

knowledge (score: 2.8 ± 0.8) and confidence (screening for suicide risk factors, score: 3.7 ± 0.8 ; assessing adolescents with suicidal thoughts without previous attempts, score: 3.5 ± 0.8) regarding SRA was fair.

SRA Module Postintervention Effects

Subgroups

Table 2 illustrates posteducational intervention results for the 4 intern subgroups (SP plus lecture, SP, lecture, and control).

Confidence in Assessing Suicidal Patients and Screening for Suicide Risk

The SP plus lecture group reported significantly greater postintervention mean confidence in assessing patients with suicidal thoughts without previous attempts (score: 4.2 ± 0.4), relative to all 3 comparison groups (SP

only, score: 2.5 ± 0.6 ; $P = .005$; lecture only, score: 2.9 ± 1.1 ; $P = .01$; control, score: 2.6 ± 0.8 ; $P = .003$). The SP plus lecture group reported significantly greater postintervention mean confidence in screening for suicide risk factors (score: 4.2 ± 0.4), relative to 2 comparison groups (lecture only, score: 2.9 ± 0.8 ; $P = .005$; control, score: 3.1 ± 0.7 ; $P = .025$). There was no statistically significant difference between the lecture-only, SP-only, and control groups in terms of postintervention confidence in assessing patients with suicidal thoughts or screening for suicide risk factors. Furthermore, we identified no extension of increased confidence to clinical variables that were not the focus of the SP session (eg, no statistically significant postintervention differences between groups for mean confidence in assessing patients with anxiety, depression, or acute or chronic medical illness).

Correlation of self-assessed confidence with performance is empirically unknown. Notably, a blinded independent rater who reviewed all videotapes of the SP encounters had a high level of agreement with the interns' self-assessment checklist scores (depression screening, $\kappa = 0.93$; suicide screening, $\kappa = 0.89$; SRA, $\kappa = 1.0$; data not shown), which supports the idea of some accurate self-assessment capacity in interns.

Knowledge of Suicide Risk Factors

The quiz score of the SP plus lecture group (92%) was significantly better than that of the control group (25%; $P = .008$). Of note, lecture attendance provided direct exposure to the knowledge relevant for the quiz, but the relatively low score for the lecture-only group suggests poor knowledge retention, especially in comparison with the SP plus lecture group. Self-rated knowledge of suicide risk factors also was greatest in

TABLE 1 Postintervention Educational Survey of Pediatric Residents

	PGY 1	PGY 2	PGY 3
<i>N</i>	34	24	22
Self-reported score, mean \pm SD			
Interest in child and adolescent psychiatry	3.9 \pm 0.8	4.0 \pm 0.8	4.0 \pm 0.7
Confidence assessing adolescents with			
Acute medical illness	4.1 \pm 0.5	4.4 \pm 0.6	4.5 \pm 0.6
Chronic medical illness	3.8 \pm 0.6	4.2 \pm 0.6	4.2 \pm 0.5
Depression	3.2 \pm 0.9	3.1 \pm 0.8	3.5 \pm 0.8
Anxiety	3.1 \pm 0.8	2.7 \pm 0.8	3.2 \pm 0.9
Suicidal thoughts without previous attempt	3.0 \pm 1.0	3.1 \pm 1.1	3.5 \pm 0.8
Suicidal thoughts with previous attempt	3.0 \pm 1.1	3.1 \pm 1.0	3.4 \pm 0.8
Confidence screening for suicide risk factors	3.3 \pm 0.8	3.3 \pm 0.9	3.7 \pm 0.8
Knowledge of suicide risk factors	2.8 \pm 0.9	2.6 \pm 0.8	2.8 \pm 0.8
Objectively assessed knowledge of suicide risk factors, % correct	51	48	48

PGY indicates postgraduate year. All responses were rated on a 5-point Likert scale from 1 = very low to 5 = very high interest, confidence, or knowledge. The objective assessment of knowledge of suicide risk factors consisted of 2 multiple-choice questions.

TABLE 2 Survey of Postgraduate Year 1 Sample After SRA Training, With Stratification According to Educational Group

	Control	Lecture Only	SP Only	SP Plus Lecture
<i>N</i>	10	12	6	6
Self-reported score, mean \pm SD				
Interest in child and adolescent psychiatry	3.9 \pm 0.8	3.6 \pm 0.8	4.2 \pm 0.4	4.2 \pm 0.8
Confidence assessing adolescents with				
Acute medical illness	4.1 \pm 0.6	4.1 \pm 0.3	4.0 \pm 0.6	4.2 \pm 0.4
Chronic medical illness	4.0 \pm 0.5	3.8 \pm 0.8	3.5 \pm 0.6	3.8 \pm 0.8
Depression	2.9 \pm 0.8	3.3 \pm 1.0	3.2 \pm 0.8	3.7 \pm 0.8
Anxiety	2.8 \pm 0.7	3.2 \pm 0.9	3.2 \pm 0.8	3.3 \pm 0.8
Suicidal thoughts without previous attempt	2.6 \pm 0.8	2.9 \pm 1.1	2.5 \pm 0.6	4.2 \pm 0.4 ^{a,b,c}
Suicidal thoughts with previous attempt	2.7 \pm 1.0	2.9 \pm 1.0	3.0 \pm 1.1	3.8 \pm 1.0
Confidence screening for suicide risk factors	3.1 \pm 0.7	2.9 \pm 0.8	3.3 \pm 0.5	4.2 \pm 0.4 ^{a,b}
Knowledge of suicide risk factors	2.4 \pm 0.7	2.8 \pm 0.8	2.8 \pm 1.2	3.5 \pm 1.1
Objectively assessed knowledge of suicide risk factors, % correct	25	54	50	92 ^a

All responses were rated on a 5-point Likert scale from 1 = very low to 5 = very high interest, confidence, or knowledge. The objective assessment of knowledge of suicide risk factors consisted of 2 multiple-choice questions.

^a $P < .05$, in comparison with control.

^b $P < .05$, in comparison with lecture only.

^c $P < .05$, in comparison with SP only.

the SP plus lecture group, but there was insufficient power to detect differences between groups.

SRA Module Preintervention/Postintervention Effects

As illustrated in Table 3, the SP plus lecture group demonstrated significant improvement from baseline in objective knowledge of suicide risk factors (+80%; $P = .003$). Trends toward significant improvement in mean self-rated knowledge of suicide risk factors (+1.8; $P = .053$) and in mean con-

fidence in screening adolescents for suicide risk factors (+2.0; $P = .066$) and in assessing adolescents with acute medical illness (+0.6; $P = .071$) also were identified in the SP plus lecture group. The lecture-only group showed no significant improvements in confidence or knowledge relevant to SRA and medical illness.

SP Debriefing Session

As professional actors, the SPs welcomed the opportunity to perform an emotionally intense simulation. After

the simulation, these SPs did not voice suicidal ideation.

DISCUSSION

Suicide is a major cause of death in adolescence, with readily detectable and modifiable risk factors. Therefore, achieving prevention of more youth suicides is a public health goal of highest priority, as recognized by the AAP. How can pediatric residents learn skills in SRA without mandated exposure to youth suicidality assessment during pediatric residency training?¹² Our educational survey suggests that current generic exposure to patients with psychiatric problems during rotations in developmental and behavioral pediatrics and adolescent medicine is insufficient and results in relatively low senior resident confidence and knowledge in assessing patients with most psychiatric problems, especially in comparison with high senior resident confidence in assessing patients with common acute or chronic medical problems. The fact that senior pediatric residents in a top-ranked training program have minimal knowledge and confidence in skills necessary for adolescent SRA calls into question the current feasibility of universal youth SRA in primary care and also suggests that AAP recommendations require urgent implementation planning. If this cohort of pediatric residents is representative of other US pediatric residents, then the public health implications of these findings are staggering. A national survey conducted by the AAP suggests that the majority of pediatricians in practice also endorse insufficient training in mental health issues as a major barrier to addressing child and adolescent mental health issues.²¹ This SRA training module seems promisingly more effective than traditional (eg, lecture-based) didactic sessions and current pediatric clinical training in improving objectively tested knowl-

TABLE 3 Preintervention/Postintervention Changes in Postgraduate Year 1 Sample

	Lecture Only		SP Plus Lecture	
	Finding	P	Finding	P
Change in scores (postintervention score minus preintervention score)				
Self-reported				
Interest in child and adolescent psychiatry	0	1.0	0.2	.374
Confidence assessing adolescents with				
Acute medical illness	0.4	.133	0.6	.071
Chronic medical illness	0.3	.347	0.2	.621
Depression	0.4	.169	0.4	.477
Anxiety	0.1	.904	0	1.0
Suicidal thoughts without previous attempt				
Suicidal thoughts with previous attempt	−0.1	.892	0.4	.477
Confidence screening for suicidal risk factors	−0.1	.729	2.0	.066
Knowledge of suicide risk factors	0	1.0	1.8	.053
Objectively assessed knowledge of suicide risk factors, % correct	22	.169	80	.003

All responses were rated on a 5-point Likert scale from 1 = very low to 5 = very high interest, confidence, or knowledge. The objective assessment of knowledge of suicide risk factors consisted of 2 multiple-choice questions.

edge relevant to SRA. Although there were trends toward improvement in the self-rated knowledge of suicide risk factors, confidence in screening for suicide risk factors, and confidence in assessing acute medical illness in the SP plus lecture group, there was not enough power to detect a statistically significant difference, because of the small sample size. The postintervention data suggested that the SP plus lecture group performed significantly better in terms of both confidence and knowledge relevant to SRA, relative to the 3 comparison groups (lecture-only, SP-only, and control groups). The effects seen were condition-specific and were not associated with generalized improvement across other psychiatric conditions. Although SRA SP training is not presented as a preferable substitute for protracted clinical case exposure and teaching in child and adolescent psychiatry, such modules involving interdisciplinary input might contribute to

the remediation of significant educational deficits in the absence of mandated training.

There are limitations to this study. The validity of the self-assessment survey has not been formally examined. However, our data converge toward showing face validity and internal consistency. That is, senior residents demonstrated greater confidence than junior residents in areas in which clinical training is clearly prioritized (eg, assessing patients with acute or chronic medical illness) but did not do so in areas of minimal clinical training (eg, assessing patients with suicidal thoughts). As discussed above, baseline data were missing for certain study groups, which prevented a comprehensive examination of preintervention/postintervention changes across all groups. Related to that issue, the finding that SP training alone seemed to be no better than either lecture alone or control in affecting confidence in SRA could be

an artifact related to selection bias (ie, interns who attended the lecture were systematically better, on average, at baseline). We suspect this was not the case, given that intern lecture attendance patterns at our institution are consistently mediocre, primarily in the context of the vagaries of intern schedules.

CONCLUSIONS

Our study suggests that pediatric residents lack the SRA training necessary to embrace the recent AAP mandate. Our SRA training module is an innovative method that may facilitate implementation of the AAP mandate. To advance research in this area, further study regarding the validity of this SRA method is clearly necessary. Equally important for this endeavor is successful educational collaboration between pediatrics and child and adolescent psychiatry, as demonstrated in this study. Without changes in traditional residency education, the larger-scale programmatic collaboration necessary to address this long-overdue public health mandate to reduce pediatric mortality rates will be ineffective.

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When More Is Not Necessarily Better: *The number of children who have their own cellphones has almost doubled in the past 5 years according to an article in The New York Times (Mindlin A, March 7, 2010). Mediamark Research and Intelligence, a market research company, reported that the increase was more attributable to boys although girls still have more cellphones (21.8% versus 18.3% in 2009). Preteens from ages 6 to 11 were surveyed and unexpectedly the age group with the highest percentage was 10 and 11 year olds, with more than a third having a cellphone. As to why children have cellphones and what they do with them, the study noted that boys were more likely than girls to use them to download games and browse the Web, and of course, to text-message. One wonders if children ever use them to actually make a telephone call.*

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