

# Adolescent Reports of Physician Counseling for Smoking

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**ABSTRACT.** *Objective.* Physicians can play an important role in reducing adolescent smoking by counseling their adolescent patients. The appropriate delivery of smoking prevention and cessation messages depends on adequate screening of adolescents, identification of smokers, and adolescents' willingness to disclose their smoking. The present study assessed adolescent reports of physician screening and counseling and adolescents' willingness to disclose smoking, as well as demographic and health status differences in these rates.

*Methods.* Adolescents ( $n = 5016$ ), ages 16 to 19, completed a survey on smoking and health. Reports of the prevalence of physician screening, counseling, and adolescents' willingness to disclose their smoking were examined, and logistic regression analyses assessed demographic and health status differences in these prevalence estimates.

*Results.* Overall, 43.4% of the sample reported physician screening, 42.1% reported receiving counseling, and only 28.8% of adolescents reported both. Furthermore, 79.3% of smokers reported that they would admit their smoking if asked. Screening, counseling, and disclosure rates differed by gender, neighborhood income level, smoking status, and asthma status.

*Conclusions.* More intensive provider-delivered intervention is needed. Efforts should focus on helping providers to identify smoking correctly and to communicate appropriate prevention or cessation messages. Persistence and sensitivity with boys, experimental smokers, and youths with chronic health conditions should be a focus of provider training, because the lower willingness of these youths to disclose their smoking may be a barrier to their identification and intervention. *Pediatrics* 2002;109(3). URL: <http://www.pediatrics.org/cgi/content/full/109/3/e47>; *adolescence, smoking, counseling, physician's role, demographic factors.*

ABBREVIATION. OR, odds ratio.

Approximately 4 million children under the age of 18 in the United States smoke cigarettes,<sup>1</sup> and each day, nearly 6000 more youths start smoking.<sup>2</sup> Cigarette smoking by young people has been associated with reduced lung growth and lung function, early signs of risk factors for heart disease, and increased risk for chronic ob-

structive pulmonary disease.<sup>3</sup> In addition, compared with nonsmoking youths, smokers experience more respiratory illnesses and cough and phlegm production and are less physically fit.<sup>3</sup> The negative health consequences associated with smoking become more problematic as an adolescent increases the number of cigarettes smoked and continues to smoke.<sup>3</sup> Furthermore, given that >89% of adult daily smokers smoked their first cigarette in childhood and 71% began smoking daily in childhood, childhood smokers are at risk for continued smoking throughout adulthood,<sup>3</sup> increasing their risk of long-term negative health outcomes.

Current clinical practice recommendations from the Agency for Health Care Policy and Research<sup>4</sup> and the American Academy of Pediatrics<sup>5</sup> stress the essential role of health care providers as agents in smoking prevention and cessation and outline a 5-step approach for reducing smoking among patients (the 5 As: ask, assess, advise, assist, and arrange<sup>4</sup>). Physicians clearly are in a position to lower adolescent smoking rates for several reasons. First, most children see a physician nearly 20 times before their 21st birthday.<sup>6</sup> Second, adolescents view physicians as credible sources of medical information<sup>7</sup> and attend to their advice more often than their parents' or other adults'.<sup>3</sup> Finally, adolescents report their physician's advice is influential in their health practices<sup>6</sup> and would motivate them to try to stop smoking.<sup>8</sup> Given the potential impact that physicians can have on adolescent smoking, it is important to determine whether physicians are counseling youths and the characteristics of those youths who are not screened or advised to quit.

Physicians seem to screen adolescents for smoking but intervene with smoking youths less often<sup>9-12</sup> and do little to prevent tobacco use among adolescents.<sup>13</sup> In one study, although screening for smoking was conducted at approximately 72% of adolescent visits, smoking counseling was provided at 2% of the total adolescent visits and only 17% of the visits with identified adolescent smokers.<sup>11</sup> Another study found that although physicians screened 91% of adolescents for smoking, they helped adolescents set quit dates (34%) and scheduled follow-up visits less often (28%)<sup>10</sup>.

The above studies relied on physicians' reports of intervention rather than patients' reports. Given physician reports of providing smoking counseling often differ from patient-reported rates of receiving such intervention<sup>14,15</sup> and that patient quit rates are predicted by patient reports but not physician reports,<sup>15</sup>

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it is important to consider the patient's perspective. Few studies have estimated the prevalence of physician screening and counseling for smoking from the patient's perspective, and most of these have focused on adults. A few studies have included young adults, and counseling estimates from these studies are generally below 50%. In one study, 37.5% of daily smokers ages 18 to 24 reported being advised to quit during their last physician visit.<sup>16</sup> In another study, 28% of smokers ages 16 to 29 reported being asked whether they smoke, another 37% were advised to quit smoking, and 8% were advised to cut down.<sup>17</sup> A third study, including 18- to 24-year-old smokers, found that 44% reported that their physicians advised them to quit smoking.<sup>18</sup> In a final study, fewer than half (46%) of women 18 to 26 years of age stated that their physician discussed smoking with them.<sup>19</sup>

Given that the majority of these studies of patient self-reports found lower rates of screening and counseling among the young adults than the older age groups,<sup>16,18,19</sup> it may be that adolescents also would report low rates of physician screening and intervention. We know of only 1 study that assessed patient reports of physician counseling specifically among youths younger than 18 years.<sup>20</sup> This study found that only 13.4% of smokers between the ages of 12 to 17 reported ever being told to quit by a physician, and no information was provided on physician screening.

Studies of adults have shown that there are demographic, smoking status, and health status characteristics that differentiate patients who receive smoking cessation counseling from those who do not receive counseling. Smokers who are female, are white, are older, smoke more cigarettes per day, use the health system more frequently, and have a history of relevant medical problems are more likely to receive smoking cessation counseling.<sup>11,14,20-22</sup> In addition, patient income may play a role in physicians' rates of smoking counseling, but results have been inconsistent. One study found higher patient incomes associated with higher rates of smoking cessation counseling,<sup>20</sup> whereas others found no difference<sup>18,22</sup>; however, this may be attributable to confounding with ethnicity, given that whites in the study by Hymowitz et al<sup>22</sup> had significantly higher incomes than blacks. In addition, Taira et al<sup>23</sup> found that physicians tend to discuss different high-risk behaviors according to patients' income levels, ie, physicians tend to discuss diet and exercise with high-income patients, and smoking with low-income patients.

Given the benefits of physician counseling in reducing adolescent tobacco use and the importance of considering the patient's perception of physician counseling, the purpose of this study was to assess adolescent reports of physician screening and counseling for smoking. In addition, because accurate screening requires that adolescents discuss their smoking honestly with their doctors, this study assessed adolescents' willingness to report their smoking to their physician. Furthermore, we examined gender, ethnicity, neighborhood income level, smoking status, and asthma status to assess whether these

characteristics related to adolescent reports of physician screening and counseling and to truthful disclosure of smoking.

## METHODS

### Overview of Study

The current investigation evaluated adolescent reports of physician screening and counseling for smoking, as well as adolescents' willingness to disclose their smoking status to a physician. Results were based on data collected in the fifth year of a 10-year longitudinal study of risk factors for smoking among youths. The sample included all 11th graders in the Memphis City Schools, as well as cohort members retained in lower grades or those who had been promoted to 12th grade. The University of Memphis Institutional Review Board approved surveying and consent procedures during each year of the longitudinal study.

Before survey administration, passive parental consent was obtained by notifying parents of the study by mail and instructing parents to call our offices if they did not want their child to participate. In addition, students provided written assent by signing a form outlining their rights as a participant and the purpose and procedures of the study. School support of the ongoing study was excellent with all eligible schools fully participating. The data were collected in homeroom classes, with classroom teachers administering the survey according to standardized procedures, as instructed by the research team.

### Participants

Of the 7876 participants scheduled to be surveyed in the fifth year of the ongoing study, 5127 (65.1%) adolescents provided complete data, 1586 (20.1%) adolescents were absent or had incomplete data, and 749 (9.5%) adolescents (or their parents) refused to complete the survey. Of the 5127 youths who participated in the survey, 5016 (97.8%) had complete demographic data and were included in the analyses presented here.

### Measures and Coding of Items of Interest

#### *Demographic Items*

Age, gender, and ethnicity were assessed via self-report. The ongoing study had originally planned to include an individual-level measure of socioeconomic status in the questionnaire; however, in the piloting stages of the survey, it became clear that most of these young participants could not provide this information. Instead, an estimate of socioeconomic status was obtained through indirect methods. Using 1990 census data, the median income in each participant's zip code area was obtained.<sup>24</sup> These data provided a global measure of the socioeconomic environment in which these youths live.

#### *Asthma Status Item*

The point (current) and lifetime (past) prevalence of asthma was assessed via self-report. Participants were asked to pick the sentence that was most true for them. Response options included: "I have never had asthma;" "I have asthma now (I had an attack in the past year or I now use asthma medicine);" or "I do not have asthma now, but I had it in the past (My last attack was more than a year ago or the last time I used asthma medicine was more than a year ago)."

#### *Smoking History*

Adolescents' use of cigarettes was measured by self-report. Participants were asked to indicate which of the following sentences was true for them: "I have never smoked, not even a puff;" "I have smoked a cigarette or a few cigarettes just to try, but I have not smoked in the past month;" "I no longer smoke, but in the past I was a regular smoker (at least 1 cigarette per week);" "I smoke, but less than 1 cigarette per month;" "I smoke, but less than 1 cigarette per week;" "I smoke from 1 to 6 cigarettes per week;" or "I smoke at least 1 cigarette per day." Although biochemical verification of smoking status is considered important in some intervention studies, such measures are not practical with large samples<sup>25</sup> and not often used for survey research.<sup>3</sup> Self-reported data are considered sufficiently valid in such large-scale studies<sup>25</sup> and in instances in which recall is restricted to 1 year,<sup>26</sup> as in the

current study. Research suggests that the best predictor of accurate reporting among adolescents is whether they are assured confidentiality.<sup>27</sup> For this reason, we instituted a number of procedures to reassure students that their privacy would be protected and maintained, as discussed above. Teachers were instructed not to assist students once the survey administration had begun, and participants were assured that the school personnel would not have access to their responses.

The 4-level smoking variable used in these analyses was derived from participants' responses to this smoking history item. Participants who responded that they had never smoked (not even a puff) were classified as "never smokers." Those who reported that they used to smoke but quit were coded as "quitters." Those who reported any level of current smoking, fewer than 1 cigarette per week, were coded as "experimental smokers," and those who reported smoking at least 1 cigarette per week were coded as "weekly or greater smokers."

#### *Self-Reported Physician Variables*

To estimate the prevalence of physician screening for smoking (the "ask" of the 5 As), adolescents were asked, "Has your doctor ever asked you if you smoke?" To assess the level of physician smoking counseling, 1 item asked, "Has your doctor ever told you not to smoke?" Thus, the definition of counseling in this study is most akin to the "advise" of the 5 As. We chose the term "counseling" because our item implies preventive as well as cessation messages. Finally, to evaluate adolescents' willingness to disclose their smoking status to their physician, 1 item asked, "If you were alone (without your parents) in your doctor's office, would you admit that you smoke if the doctor asked you?" This item was coded only for those participants who reported some level of current smoking. All 3 of these variables were coded 0 = no and 1 = yes.

## RESULTS

### Overview of Analyses

The purpose of this study was to assess adolescents' self-reports of physician screening and counseling for smoking and adolescents' willingness to report their smoking to their physician, and to explore differences in these associations by gender, ethnicity, neighborhood income level, smoking status, and asthma status.

Descriptive statistics were used to generate the frequencies of adolescents' reports of the prevalence of physician screening and counseling and their willingness to disclose their smoking. A series of logistic regression analyses in which the 3 physician items were treated separately as dependent variables assessed group differences in these prevalence estimates.

### Participant Characteristics

The sample was 55.9% female, was 82.9% black and 17.1% white, and averaged 16.9 years of age (range: 16–19 years). A significant number of participants came from low-income neighborhoods; for example, 23.3% came from zip codes where the median household income was <\$20 000. The majority (60.8%) came from neighborhoods in which the median income was between \$20 000 and \$39 999, and the remaining 15.9% came from neighborhoods where the median income was >\$40 000. Regarding smoking, 9.8% reported currently smoking at least weekly, 30.1% reported currently experimenting with smoking at levels less often than 1 cigarette per week, 6.2% reported quitting smoking, and 53.9% were never smokers. A significant number of participants reported current (6.8%) and past (8.9%)

asthma. Regarding the physician screening and intervention items, 43.2% reported neither screening nor intervention, 14.6% reported screening only, 13.4% reported intervention only, and 28.8% reported both screening and intervention. Importantly, 79.3% of smokers reported that they would admit their current smoking status to their physician if asked.

### Adolescent Reports of Physician Screening

Overall, 43.4% of the sample reported ever being asked by their physician whether they smoke. Screening differed significantly (all  $P < .05$ ) by gender, neighborhood income level, smoking status, and asthma status. Girls were 1.43 times more likely than boys to report being asked whether they smoke. There was an effect for income such that the odds of screening declined as income rose. Those from moderate- or high-income neighborhoods were less likely than those from low-income neighborhoods to report screening (respective odds ratios [ORs]: 0.80, 0.74). With regard to smoking, those who had quit smoking were 1.42 times more likely than never smokers to report screening. In addition, those who reported current weekly smoking were 1.75 times more likely than never smokers and 1.64 times more likely than experimental smokers to report screening. Screening also differed by asthma status. Adolescents who reported current asthma were 1.60 times more likely than those without asthma to report having been screened.

### Adolescent Reports of Physician Smoking Counseling

Overall, 42.1% of participants reported ever being told by their physician not to smoke. Smoking counseling differed significantly (all  $P < .05$ ) by gender, neighborhood income level, smoking status, and asthma status, but not by ethnicity. Girls were 1.14 times more likely than boys to report being told not to smoke. There was an effect of income such that the odds of reporting smoking counseling decreased as income increased. Those from moderate- or high-income neighborhoods were less likely than those from low-income neighborhoods to report counseling (respective ORs: 0.80, 0.62). Those who reported currently experimenting with smoking were 0.86 times less likely than never smokers to report counseling, whereas those who reported current smoking were 1.41 times more likely than experimental smokers to report being told not to smoke. Reports of physician intervention also differed by asthma status. Adolescents who reported current or past asthma were more likely than adolescents without asthma to report counseling (respective ORs: 1.90, 1.55).

### Adolescents' Willingness to Disclose Smoking to Their Physician

Participants who reported any current smoking were asked to indicate whether they would admit to their physician that they smoked. Overall, 79.3% of smokers reported that they would admit their smoking to their physician if asked. Willingness to disclose differed significantly (all  $P < .05$ ) by gender,

ethnicity, neighborhood income level, and smoking status. Girls were 1.55 times more likely than boys to report a willingness to disclose their smoking to their physician. Black youths were 0.27 times less likely than white youths to report a willingness to disclose. Regarding income, youths from high-income neighborhoods were 1.95 times more likely than those from low-income neighborhoods to report a willingness to disclose their smoking status. There was an effect of smoking such that weekly smokers were 2.92 times more likely than experimental smokers to report a willingness to disclose.

## DISCUSSION

This is the first study to measure adolescent reports of physician screening and counseling for smoking in a sample of smokers and nonsmokers, as well as adolescents' willingness to disclose their cigarette smoking to their physician. Furthermore, this study is unique in that demographic and health status differences in these associations were documented. Overall, 43.4% of the sample reported physician screening for smoking, and 42.1% reported receiving smoking counseling. These rates differed by gender, neighborhood income level, smoking status, and asthma status. Furthermore, although 79.3% of smokers reported that they would admit their smoking status to their physician if asked, this also differed by gender, ethnicity, neighborhood income level, and smoking status.

Only 28.8% of adolescents reported having been both screened and counseled, which is higher than some previous studies<sup>16,17,20</sup> but similar to others.<sup>18,19</sup> This discrepancy could be attributable to other studies' being limited to current smokers only, whereas our study included both smokers and nonsmokers. These low screening and counseling rates suggest that some physicians might not be serving as active agents in smoking prevention and cessation among youths; however, there are alternative explanations for these findings. It could be that physicians are counseling youths but not at an intense enough level for adolescents to attend to the message and recall it; however, as suggested by the Centers for Disease Control and Prevention,<sup>14</sup> we also could have underestimated physician involvement as a result of differences between adolescents' definitions of physician counseling and the way it was assessed in the study. Furthermore, because the assessment of adolescent patients' smoking status may occur on a screening questionnaire and not via a direct question by a physician, it may be that screening rates are higher than the rate reported in this study.

This study revealed demographic and health status differences in screening, counseling, and willingness to disclose smoking, suggesting that there are particular groups of adolescents who need more help from physicians to reduce their risk for smoking. First, girls were more likely than boys to report physician screening and counseling and a willingness to disclose their smoking to a physician if asked, consistent with previous studies that assessed counseling rates among young people.<sup>20,28</sup> Physicians may be more likely to counsel girls for smoking for sev-

eral reasons. They may be aware that cigarette smoking among girls is high, stable, and not decreasing<sup>29</sup>; they may be better able to identify female smokers because girls are more willing to disclose their smoking; physicians may believe that boys will not attend to their advice; or they may be less concerned about boys experimenting with smoking if they believe that "boys will be boys." Alternatively, because girls 15 years of age and older are more likely than boys to visit physicians,<sup>30</sup> the higher screening and counseling rates among girls may be attributable to their increased access to physicians.

Second, black and white adolescents were equally as likely to report counseling, which is inconsistent with most previous studies that documented lower counseling rates among minorities.<sup>20,21,28,31</sup> The discrepancy between the results of this study and those of previous studies could be attributable to differences in counseling when measured in a predominantly minority sample (our sample was 83% black) versus when measured in a sample in which minorities represent a small fraction of the total sample. Our data also revealed a disturbing finding unexplored in previous research: black youths were less likely to be willing to disclose their smoking to a physician. Because our data show that black youths perceive greater parental disapproval of smoking than do white youths (results not presented), black adolescents may fear the consequences of admitting their smoking. Given the magnified health consequences of smoking for blacks,<sup>32</sup> it is imperative that these youths disclose their smoking and receive help from physicians.

Third, the study found that physician screening and counseling decreased with increasing income, inconsistent with previous studies,<sup>18,20</sup> whereas willingness to disclose smoking increased with increasing income. Because our sample does not contain the high-income group present in other studies, our study explored differences among lower income groups. However, as discussed above, it has been suggested that physicians tend to discuss smoking with low-income patients and discuss diet and exercise with higher income patients.<sup>23</sup> Our results support this conclusion. Alternatively, because studies have demonstrated that smoking rates are lower among high-income groups,<sup>33</sup> physicians may not view smoking prevention and cessation counseling as necessary with higher income patients.

Fourth, consistent with previous research in primarily adult samples,<sup>16,18,20,21,28,34</sup> regular smokers were more likely to report counseling. Although it is encouraging that physicians are counseling regular smokers, they need to do more to prevent the onset of smoking and the progression to full-scale smoking among adolescents and to assist regular smokers to quit. Physicians should be aware that experimental smokers might be less likely to disclose smoking. This is not surprising, considering that experimental smokers may not identify themselves as smokers; however, this puts these youths at risk for progressing to regular smoking because physicians may be unable to identify them as needing smoking counseling. Thus, physicians should screen for any level

of smoking, including experimentation with cigarettes, by asking very concrete questions, such as, "Have you ever smoked a cigarette, even a few puffs," instead of asking only whether the adolescent smokes, and then counsel appropriately.

Finally, consistent with previous studies of adults with chronic health conditions,<sup>11,16,20,21,28,31,35</sup> youths with current or past asthma were more likely to report smoking counseling than those with no history of asthma. Although these results are encouraging, the low magnitude of the effects suggests that more intervention is needed. Given the health consequences of smoking on youths with asthma, physician intervention with this group is critical.

We recognize that this study has some limitations that constrain the interpretation of the results. First, the sample was predominately black and came from relatively low-income neighborhoods; therefore, generalization to the US population of 11th graders is limited. Second, although self-reports of smoking and health status are considered reasonable estimates in large-scale epidemiologic studies, future studies may benefit from validating smoking using biochemical verification and asthma status from health records. Third, the present study is limited to youth reports of physician screening and counseling only; future studies should evaluate both youth and physician reports. Fourth, future studies should assess the involvement of other health care providers (nurses, etc) in tobacco control because they may have more access to adolescent patients. Fifth, it is unknown when the physician screening and counseling took place; thus, conclusions about the optimal timing of physician involvement cannot be drawn from this study. Sixth, this study did not measure access to health care. To the extent that adolescents in this sample lack access to adequate health care, their reports of physician involvement in tobacco control may be underestimated. Last, this study did not measure use of the full 5 As model<sup>4</sup> in counseling adolescents about smoking. It is likely that rates of physicians counseling of adolescents using the 5 As model are lower than the rate reported in this study.

## CONCLUSION

Physicians are clearly in a position to lower adolescent smoking rates. This study documented low rates of adolescent reports of physician tobacco screening and counseling. More research is needed to elucidate whether adolescents are not getting adequate smoking intervention by health care providers or whether they fail to remember the counseling. Regardless, more intensive provider-delivered intervention is needed. Efforts need to be directed toward helping providers to identify smoking correctly among their adolescent patients and to communicate appropriate prevention or cessation messages. Persistence and sensitivity with boys, experimental smokers, and youths with chronic health conditions should be a focus of provider training, because the lower willingness of these youths to disclose their smoking may be a barrier to their identification and intervention.

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Isabel C. Scarinci

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