Adolescents’ Knowledge of Their Health Insurance Coverage

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Purpose: To determine the accuracy of adolescents’ self-report of health insurance coverage, using parents’ report as a comparison standard.

Methods: Two separate samples of urban, school-based adolescents and their parents completed self-administered questionnaires about type of health insurance coverage. Sample 1 included 123 and Sample 2 included 93 adolescent–parent pairs. Percent agreement and the kappa statistic were determined for each of the sample groups, and for males versus females and older (>14 years) versus younger (≤14 years) adolescents.

Results: In Sample 1, 33% of adolescent respondents responded “don’t know” to the question about type of insurance coverage, and 4% left the question blank; in Sample 2, 3% answered “don’t know,” with none leaving the question blank. For Sample 1, we found a 57% rate of agreement of adolescents with their parents, and a corresponding kappa of .21. Females and older subjects demonstrated greater accuracy, with kappa’s all in the range .13–.29. In Sample 2, 73% of subjects agreed with parents’ report, with a kappa of .48. Females and older subjects also demonstrated greater accuracy, with the highest kappa of .59 demonstrated by older females. Excluding those responding with “don’t know,” we found overall percent agreement with parents of 87% in Sample 1 and 73% in Sample 2; the corresponding kappas were .47 and .51. Females demonstrated higher agreement with parents in both samples. The results stratifying by age were inconsistent. In Sample 1, privately insured subjects were more accurate reporters than those either on medical assistance or uninsured. In Sample 2, no differences were seen by type of insurance.

Conclusions: Many adolescents do not know their health insurance coverage status. However, for those who did claim to know, acceptable rates of accuracy using both percent agreement and the kappa statistic were demonstrated. Further research is needed to determine how information about insurance is communicated to adolescents and how this knowledge affects access to and use of health services. © Society for Adolescent Medicine, 1998

KEY WORDS: Adolescents Health insurance Validity Accuracy Self-report

Insurance coverage for children and adolescents and their receipt of health services vary widely by socioeconomic and racial/ethnic status. Black and Hispanic children, those in poor families, and those in single-parent households are least likely to be insured (1). Children and adolescents without health insurance receive less preventive care and receive more care from a public or hospital clinic source than a private source (1). Adults lacking health insurance are also less likely to use general medical and preventive services and more likely to delay seeking medical care and to experience avoidable hospital-
ization, in-hospital mortality, and poor health outcomes (2,3). Recognition of the importance of health insurance as a factor in access to and use of health services, especially in view of the increasing numbers of individuals without adequate health insurance coverage, has stimulated efforts to reform both health care and health insurance systems in the United States.

Health services research focusing specifically on access to care and the effects of health insurance on use of medical care and subsequent health outcomes often relies on the self-report of individual and household information about health insurance coverage. While it has been demonstrated that adults can accurately report their health insurance status, they are often inaccurate in reporting more specific information such as extent and range of covered benefits (4). Very little is known about the validity of reports from children and adolescents about their own or their parents’ health insurance coverage. We were able to find only one published abstract reporting adolescents’ knowledge of their insurance status (5). This study found that only 50.7% were able to accurately report (5). Adolescents appear to be more accurate in their reports of parental socioeconomic status using proxy indicators such as parental education and father’s occupation (6–10). Parental occupation tends to be more reliably reported than education, with information about income least accurate (6,10).

Because surveys of adolescents may require obtaining information about health insurance independently of parents, it is important to know the validity of such reports. The use of adolescents’ self-report information avoids the extra time, effort, and expense that may be involved in obtaining this information directly from parents (6). Changes in the organization and delivery of medical services and the move toward managed care require that individuals (including teenagers) be informed if they are to make the most effective use of available health care. As many adolescents frequently make their own decisions regarding use of health care, the extent to which adolescents are aware of their health insurance may well determine their use of needed medical services.

The purpose of this study was to assess the validity of adolescents’ self-report using parents’ report of their teen’s insurance coverage as the validation criterion. We also sought to determine whether the accuracy of reporting varied by age and gender. We expected that adolescents would demonstrate adequate knowledge of their basic health insurance status, and we expected to find percent agreement rates comparable to what has been reported with other sociodemographic information and acceptable (kappa > .40) reliability between parents and their teens. Further, we expected that older adolescents and females would be more accurate.

Methods

Sample Populations and Procedures

Two separate studies provided the school-based samples used in the current report. Both samples were derived from major urban centers: the first between 1988 and 1989, and the other in 1991.

Study 1. The sample in this study included a group of adolescents ages 11–18 years, who attended public school in a major Northern California city and who were participants in a longitudinal survey of the determinants of risk behaviors and use of health services (11,12). Total enrollment in the study was 199 students; 123-adolescent-parent pairs were available for the current analysis, representing the subgroup of subjects whose parents also completed a brief survey. This parent/guardian survey was mailed to the parents/guardians of all subjects to verify specific health insurance and socioeconomic background information; the majority of parents (75%) who answered the survey questions were mothers. Adolescents in the subgroup of 123 subjects whose parents or guardians provided additional information were compared with the remaining 76 subjects whose parents did not return the survey. These subjects did not differ by age, gender, or racial ethnic background.

Study 2. The sample in this study consisted of a group of adolescents ages 11–18 years attending public school in a major Maryland city; 208 teens and their parents (generally mothers) were randomly selected from a larger group of students (representing 14% of this larger sample of 1406) who had previously completed a comprehensive health status and health services use survey. The final sample for this study consisted of 93 adolescent–parent pairs and included those adolescents whose parents (163 of the 208 recruited) agreed to come to a school site to complete a brief questionnaire concerning their child’s health status and health services use, and who themselves had been present for the two separate days of survey administration in the schools.
The methods for identification of the school study population and data collection are described in detail elsewhere (13). In comparison to the larger group from whom they were chosen, the students in the subsample were younger and more likely to come from two-parent homes.

Measures and Procedures
For both samples, subjects completed questions about health insurance in the context of a brief survey on use of general health services. Sample 1 used the Health Services Utilization survey developed specifically for the larger study assessing determinants of health services use (11), and Sample 2 used an adaptation of this instrument. For Sample 1, formal active consent was obtained from both the adolescents and their parent(s), and for Sample 2, assent was obtained from adolescent subjects following passive parental consent. Both procedures were approved by and conducted in accordance with institutional review board requirements. Adolescent subjects completed questionnaires separately from parents in each situation and were not able to confer with parents about their health insurance coverage. Sample 1 took place at a University site and Sample 2 in a classroom setting.

Subjects were asked how they or their parents paid for their own medical care and were given the options of private insurance (including indemnity plans as well as managed care plans), public assistance/Medicaid, self-pay (including sliding fees) or no insurance, and “don’t know.” In each of the corresponding parent/guardian surveys, parents or guardians were similarly asked how they paid for their own and their children’s medical care; similar response categories were provided, with the exception that parents were not given the option of “don’t know.” For the purpose of analysis, health insurance was categorized as: private insurance, public insurance, none/self-pay, and unknown.

Because of confidentiality concerns of school personnel, limitations were placed on the investigators’ ability to collect additional information and to verify health insurance coverage by contacting actual insurance carriers.

Data Analyses
Overall accuracy of reporting was determined by comparing adolescents’ responses to those of their parents regarding their insurance coverage and determining both percent agreement and the kappa statistic. The kappa statistic measures the extent of agreement, correcting for chance (14). We also calculated separate percentages of agreement and kappa statistics for each of the samples, stratifying by gender and age (≤14 y vs. >14 years) group.

To assess knowledge of insurance for those adolescents who might be expected to be more accurate in their report of their insurance coverage (that is, those who gave any answer other than “don’t know”), we did an identical set of analyses for this subgroup in each of the two samples. In addition, we determined percent agreement with parents according to whether subjects had private or public insurance or were uninsured, for both samples, and for the overall group, as well as the subgroup excluding the “don’t know” responders. This “subgroup” by definition excluded the “don’t know” category. The kappa statistic could not be calculated in this case, given that there was only one category of insurance being evaluated at each time.

The SAS-PC statistical package was used (15).

Results
Sample Characteristics (Table 1)
For each of the samples, there were approximately equal numbers of males and females, and younger (11–14 years) and older (15–18 years) adolescents. Each group was ethnically diverse, with the West Coast sample having higher numbers of Asian, Hispanic, and mixed racial subjects. The West Coast subjects also came from higher educational backgrounds, with more mothers with college or higher degrees. More subjects were privately insured in Sample 1, and more subjects in Sample 2 were either uninsured or on medical assistance.

Response Rates
In Sample 1, five (4.1%) left the question on insurance blank and 41 (33.3%) responded that they did not know their insurance status. In Sample 2, smaller numbers responded that they did not know their insurance status (n = 4; 3.4%) and none left the question blank. For Sample 1, three parents skipped the question, and were eliminated from further analysis; in Sample 2, no parents left the question blank.

For both samples, the adolescents who responded that they did not know their coverage were similarly distributed throughout all categories of insurance coverage provided by their parents. This was also
true for the students in Sample 1 who left the question blank.

Parent–Adolescent Agreement (Table 2)

For all subjects in Sample 1, including those who responded ”don’t know” or left the question blank, overall percent agreement with parents was 57%. For Sample 2, overall agreement for all subjects with parent responses was 70%. The corresponding kappa values for Sample 1 and 2 were .21 and .48, respectively.

Kappa values are listed in Table 2 for each of the subgroups, stratifying by gender, age, and both gender and age. For Sample 1, 50–60% of subjects in these subgroups agree with parental report, with the corresponding kappas all below .30 (range .15–.29). Females and older subjects demonstrated higher agreement and kappa values, with the group of females older than 14 years having the highest kappa of .29. For Sample 2, percent agreement for the groups stratified by age, gender, and both ranged from 61% to 77%. For this sample, females and older subjects, demonstrated the highest kappa values.

After excluding those adolescent subjects who either responded ”don’t know” or left the insurance question blank, there were 77 adolescent–parent pairs in Sample 1 and 89 from Sample 2. For Samples 1 and 2, overall percent agreement between parents and adolescents was 87% and 73%, respectively, with corresponding kappas of .47 and .51 (Table 3). For the groups stratified by age and gender, both the percent agreement rates and the kappas were improved, especially for Sample 1, with percent agreement rates ranging between 70% and 90% and kappas ranging from .36 to .59. For both samples, females demonstrated greater accuracy. With the exception of the group of males younger than 14 years in Sample 1 (n = 14), all of whom agreed with their parents’ report that they were privately insured (100% agreement and a kappa of 1.0), older females were more accurate. In Sample 1, younger adolescents had higher agreement than older adolescents, although the reverse was true in Sample 2.

Accuracy by Type of Insurance

Tables 2 and 3 provide a description of agreement for each of the types of insurance. For the overall Sample 1, rates of accuracy differed depending upon the type of insurance; those with private insurance reported...
Table 3. Agreement between parents and adolescents, by samples, for total groups, and by gender and age subgroups, excluding "don't know" responders

<table>
<thead>
<tr>
<th></th>
<th>Sample 1</th>
<th>Sample 2</th>
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<tbody>
<tr>
<td></td>
<td>(N = 77)</td>
<td>(N = 89)</td>
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<tr>
<td>Percent Agreement</td>
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<tr>
<td>k</td>
<td>0.87</td>
<td>0.73</td>
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<td></td>
<td>0.47</td>
<td>0.51</td>
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<tr>
<td>Gender</td>
<td></td>
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<tr>
<td>Males</td>
<td>0.91</td>
<td>0.75</td>
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<td></td>
<td>0.37</td>
<td>0.37</td>
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<tr>
<td>Females</td>
<td>0.81</td>
<td>0.71</td>
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<td></td>
<td>0.47</td>
<td>0.55</td>
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<tr>
<td>Age (yr)</td>
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<tr>
<td>≤14</td>
<td>0.86</td>
<td>0.69</td>
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<td></td>
<td>0.49</td>
<td>0.50</td>
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<tr>
<td>&gt;14</td>
<td>0.85</td>
<td>0.76</td>
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<td></td>
<td>0.45</td>
<td>0.53</td>
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<tr>
<td>Gender by age (yr)</td>
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<tr>
<td>Males ≤14</td>
<td>1.00</td>
<td>0.72</td>
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<tr>
<td></td>
<td>1.0</td>
<td>0.36</td>
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<tr>
<td>Males &gt;14</td>
<td>0.85</td>
<td>0.77</td>
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<td></td>
<td>0.37</td>
<td>0.42</td>
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<tr>
<td>Females ≤14</td>
<td>0.82</td>
<td>0.68</td>
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<td></td>
<td>0.52</td>
<td>0.51</td>
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<tr>
<td>Females &gt;14</td>
<td>0.89</td>
<td>0.76</td>
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<td></td>
<td>0.56</td>
<td>0.59</td>
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<tr>
<td>Insurance type</td>
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<tr>
<td>Private health insurance</td>
<td>0.97</td>
<td>0.72</td>
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<tr>
<td></td>
<td>NB</td>
<td>NB</td>
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<tr>
<td>Public assistance/Medicaid</td>
<td>0.67</td>
<td>0.73</td>
</tr>
<tr>
<td>None/self-pay</td>
<td>0.30</td>
<td>0.78</td>
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NB - Kappa cannot be computed.

most accurately (69%), followed by lower accuracy for those publicly insured (28%), or uninsured (15%). In contrast, in Sample 2 the accuracy rates across the different types of coverage were similar. Excluding those responding “don’t know” from both samples improved the percent agreement rates overall, but the discrepancies seen by types of insurance remained, particularly for Sample 1 (Table 3).

Discussion

The data presented here are among the first to evaluate the validity of adolescent’s self-report of their health insurance coverage using parent’s report as the comparison standard. Our results differ from an earlier brief report of a 50.7% accuracy rate (5). For one of our samples (Sample 2), our primary hypothesis was confirmed, with at least 6 to 7 of 10 subjects reporting their insurance coverage accurately, and corresponding kappa values in the fair to adequate range.

These data are similar to previously reported studies assessing the validity of sociodemographic information reported by both adults and children, and confirm our hypothesis that adolescents would similarly be able to report their insurance coverage. For Sample 1, the percent agreement rates were similar to those found by Cohen and Orum, who found, using correlation coefficients, agreement in the .72–.94 range for reports of father’s education (7). These investigators also found similar rates for mother’s education and father’s occupation, as have numerous other investigators (7,8,10). Cohen and Orum also found higher accuracy among older adolescents and females (7), although we found that accuracy was consistently better only among females as compared with males, confirming, in part, our second hypothesis.

It is unclear why females, and especially older ones, are more accurate reporters of their health insurance coverage. One explanation is that older females are higher users of health care services, and this use may result in their learning about the presence or absence of, and extent of coverage of their insurance. However, the greater accuracy of females for sociodemographic information not necessarily related to their prior use of health care services (i.e., parental education and employment) (6,7,10) suggests that females may be better informed because of a greater tendency to communicate in general with parents about such matters (unpublished observations).

The large numbers of unusable or missing responses demonstrated by one of our samples has also been observed and documented in other studies. Bowles et al. found up to 41% nonresponders to questions about parental demographic characteristics among children in the sixth grade, with ninth and 12th graders having considerably lower rates ranging between <1% and 16% (16,17). These investigators, however, examined rates of those not providing any information and did not include “don’t know” responses in their unusable data rates. It is not clear why so many subjects in Sample 1 were willing to answer the question with “don’t know,” in comparison with our second sample, or why the second sample had more consistent accuracy across different types of insurance and slightly higher kappa scores. It is possible that characteristics of Sample 2, such as prior experience with the health system, or the environment in which they completed the surveys affected their reporting or their knowledge, although we were not able to specifically evaluate this. No clear patterns have been found by other investigators attempting to characterize those subjects more likely to be responders than nonresponders (6).

Investigators have also found a tendency to upgrade parental socioeconomic status by reporting higher rates of education, better occupation, and greater income (8–10). Although we did not find a systematic bias among nonresponders in reporting
insurance coverage (i.e., those who reported that they did not know their insurance status were no more likely to be uninsured or on medical assistance than those reporting as though they knew this information), the low accuracy in Sample 1 for those uninsured or insured through public assistance raises the possibility of bias in reporting.

Several limitations warrant discussion, the most important of which is our inability to obtain independent verification of parental reports from insurance providers. We did, however, seek support in the literature for using parental reports of coverage as a proxy measure for actual verification from insurance carriers. Relatively little has been published recently regarding this. Walden et al. evaluated the concordance between head of household reports using the Household Survey, the Health Insurance/Employer Survey (HIES), and the Uninsured Validation Survey (UVS) components of the National Medical Care Expenditure Survey (NMCES) obtained in 1977 (4). They found high agreement between household responders and insurance carriers and employers regarding presence of insurance (99.9%) and lack of insurance (81.9%).

Although the samples were surveyed at different time periods, data were obtained prior to the recent changes in the direction of increased managed care. Our population was also school-based and relied upon the presence and the participation of a parent or guardian. Although these school-based samples are not representative of those adolescents out of school or without an available parent or guardian, they do reflect a population that is more generally representative than clinic populations, which are traditionally used in such validation surveys, as insurance verification data are more readily available in clinic settings. However, such clinic-based populations may select for sicker individuals or those who have been able to access the health care system. The process of accessing the health care system, may serve in part, to inform individuals their insurance coverage, biasing validation results. Finally, our samples were small, and the kappas computed for the smaller samples stratified by gender or age should be viewed with caution.

The implications of a lack of knowledge about one’s health insurance coverage are unclear, as most studies that have evaluated the role of health insurance on access to care have looked specifically at the presence or absence of health insurance, rather than knowledge about insurance, as a predictor of use of services (1,11,18). This is an area worthy of further study, especially given the current climate of health insurance reform that has placed emphasis on consumers being informed users of care. Further, it is unclear how managed care may change the nature of the obstacles that adolescents often experience in obtaining care, and the requirement that consumers of health care be informed may present a new and daunting obstacle to many youth (19). Given that adolescents frequently face barriers to accessing health care, the additional requirement that they be informed about their insurance status may present an additional obstacle for many youth (19).

These data should prove useful to those adolescent health services research efforts that rely on adolescent self-report when specific information regarding health insurance is needed. This includes situations where obtaining the information from parents would be prohibitively expensive or time-consuming, or would violate the confidentiality of respondents. The substantial number of teens who responded either by skipping the question or answering that they did not know this information is not only problematic from a methodological standpoint, but also emphasizes how uninformed many young people are about information that may have an impact on their access to medical care. Further research may assist in determining how adolescents acquire specific information about their health insurance, how the accuracy of such information may be enhanced, and whether a lack of this information represents an access barrier to the use of medical services. Given that health services and public health and medical researchers may rely on self-report when studying adolescent populations, it is important to be able to rely on teens to report information such as health insurance. This is especially true if we are to gain a better understanding of the role of insurance on access to services, use of medical care, and subsequent effect on health status and general well-being.

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References
1. Bloom B. Health insurance and medical care: Health of our nation’s children, United States, 1988. Advance Data from
15. SAS Institute, Inc., Cary, NC.