

# The Health Profile of Incarcerated Male Youths

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**Abstract.** *Objective.* To identify the health needs of adolescent males incarcerated in a juvenile justice facility and to compare their health profiles with those of male adolescents in the community.

*Methods.* Cross-sectional surveys were conducted of incarcerated ( $N = 202$ ) and school ( $N = 379$ ) samples of male youths. Questionnaires were self-administered and completed before admission health screens (incarcerated youth) or in classrooms (school sample). Health status was assessed by the Child Health and Illness Profile, Adolescent Edition, using scale and item means and by categorizing each youth's pattern of health into 1 of 13 mutually exclusive health profile types.

*Results.* Compared with school counterparts, incarcerated male youths had significantly worse health status as demonstrated by poorer health and functioning scores in perceived well being, self-esteem, physical discomfort, acute, chronic, and psychosocial disorders, family involvement, physical activity, interpersonal problem-solving, risk behaviors, and academic performance. Three profile types—High Risks, High Risks/Low Resilience, and Worst Health—accounted for patterns of health for 69.8% of incarcerated youth versus 37.3% of an age-matched school sample. Just 6.4% of incarcerated males were in the Excellent/Good Health profile types, which contrasted with 34.2% of the age-matched school sample.

*Conclusions.* The health profiles of incarcerated male youths were worse than those of male youths in school. Our results indicate that rehabilitation programs will need to address incarcerated youth's basic health needs as well as modifying their risk and antisocial behaviors. *Pediatrics* 2000;105:286–291; *health status, delinquency, incarceration, adolescence, health needs.*

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ABBREVIATION. CHIP-AE, Child Health and Illness Profile, Adolescent Edition.

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Each year 5.5% of youths age 10 or older are referred to juvenile court.<sup>1</sup> The large majority (81%) of these referrals are for males.<sup>1</sup> Approximately 20% to 40% of all male youths will be arrested at least once before adulthood.<sup>1,2</sup> Of those youths adjudicated to be delinquent, 29% are placed in residential facilities.<sup>1</sup>

In comparison with the general population, de-

linquent youths report more sexual activity,<sup>3,4</sup> more drug and alcohol use,<sup>4–7</sup> poorer academic performance,<sup>4,8</sup> poorer interpersonal problem-solving skills,<sup>8</sup> more problem behaviors in school, such as aggressiveness and disobedience,<sup>4,8</sup> and less family involvement.<sup>9</sup> These health behaviors and experiences have become nearly synonymous with delinquency.

Other researchers have shown that delinquency is associated with medical and psychosocial morbidity. Hein and colleagues<sup>5</sup> diagnosed medical problems in 46% of 47 288 teens admitted to a detention center. Trauma,<sup>3,5,6,10,11</sup> psychiatric disorders,<sup>5,12–14</sup> dental,<sup>5,7,15</sup> dermatologic,<sup>5,7,10,15</sup> and ear, nose, and throat problems<sup>4,5,7,10,15</sup> are among the most frequently cited conditions in need of medical attention for delinquent youth.

Despite the value of these studies, none has used a comprehensive measure of health to examine the breadth and severity of health problems that occur among delinquent youth. One approach to demonstrating the complexity of health problems in these youth is to use a multidimensional health assessment that characterizes the clustering of physical, emotional, and social health problems. Such an approach could be used in the design and evaluation of rehabilitation programs to ensure that they address the range of problems that contribute to and maintain the delinquent behaviors.

The Child Health and Illness Profile, Adolescent Edition (CHIP-AE), is a self-report instrument that is based on a broad conceptualization of health.<sup>16,17</sup> It measures risk behaviors, health states and behaviors that protect health from future negative insults (resiliencies), social achievement in developmentally appropriate activities, medical and psychosocial disorders, physical and emotional symptoms, satisfaction with health, and self-esteem. Differences between groups can be examined by item-level and scale-level mean scores and by differences in the distribution of the recently developed Adolescent Health Profile types.<sup>18,19</sup> These profile types provide a person-based summary of the relative strengths and weaknesses of a group of individuals across a multitude of health characteristics. Individuals with a similar pattern of health are grouped together into 1 of 13 mutually exclusive and exhaustive profile types.

To characterize the meaningfulness of the distribution of profile types among delinquent youth, this study was designed to determine how well the

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CHIP-AE discriminates incarcerated male youths from school counterparts in terms of their health. We hypothesized that incarcerated youths would have poorer health than school counterparts across all domains of health. In particular, incarcerated youths' patterns of health would reflect the association of antisocial and risk behaviors with somatic and mental health problems. The implications and value of using a multidimensional approach to assessing the health status of incarcerated youth are discussed in terms of planning interventions and evaluating the effectiveness of rehabilitation programs.

## METHODS

### Samples

The incarcerated group of male youths was composed of 202 individuals consecutively admitted to a juvenile justice facility in the state of Maryland. Four individuals declined to participate in the survey (participation rate: 98%). Youths had been admitted to a short-term detention center, an intermediate duration program (lengths of stay from 30–90 days), or a high security program with lengths of stay from 6 to 24 months. Because we did not collect information on which program an incarcerated youth was admitted to, these individuals were combined into a single incarcerated youth sample. The survey was conducted in 1995.

The comparison group was selected from the reference population used to standardize scale scores for the CHIP-AE.<sup>17</sup> The sample of 877 respondents was obtained in 1992 from 2 schools in Northern Baltimore City (response rate was 88%). Of these 877, we selected all 12- to 19-year-old males ( $N = 379$ ), which was consistent with the age range of the incarcerated youth sample.

### Data Collection Procedures

The study protocol was approved by the Joint Committee on Clinical Investigation at Johns Hopkins Medical Institutions. When a male youth was admitted to the facility, parents were notified about the study and sent consent materials. Parents were given the option to exclude their child from participation in the survey. Informed consent from the youths themselves was also obtained before survey administration. For incarcerated youth, the CHIP-AE was administered before their admission health screens. Youths' responses to the questionnaire were used to generate health-related discussions during the health screen.

Details of survey administration in the school sample are presented elsewhere.<sup>17</sup> Parents of youths in school were sent consent materials before teens participated in the survey. Those parents who did not want their child to participate were given the opportunity to return a postcard to school indicating their desire to decline.

After a member of the project team explained the study and gave instructions, questionnaires were self-administered and completed in a quiet location in the health care facility (incarcerated youth) or in classrooms (school sample).

### Measurement of Health Using the CHIP-AE

The conceptual framework of the CHIP-AE has 6 domains and 20 subdomains (see Table 1). Domain and subdomain scales have acceptable levels of internal consistency and test-retest reliability.<sup>17</sup> Construct validity has been documented by showing that the instrument has moderate to high correlation with other measures that assess single domains of health and by demonstrating that it can discriminate "well" adolescents from those with "illness," as characterized by acute and chronic disorder.<sup>16,20,21</sup> Additional details on instrument development and scoring are presented elsewhere.<sup>22</sup> Scale scores have a standardized mean of 20 and standard deviation of 5. Thus, a standardized scale score of 25 can be interpreted as 1 standard deviation above the mean of the reference population.

Respondents completed a series of sociodemographic ques-

**TABLE 1.** Child Health and Illness Profile, Adolescent Edition, Domains and Subdomains

Satisfaction: Perceived level of health and well being.
<b>Subdomains</b>
1. <i>Satisfaction with health</i> : overall perceptions of and beliefs about one's health
2. <i>Self-esteem</i> : self-concept
Discomfort: Specific physical and emotional sensations/feelings that interfere with comfort.
<b>Subdomains</b>
1. <i>Physical discomfort</i> : physical feelings and symptoms
2. <i>Emotional discomfort</i> : emotional feelings and symptoms
3. <i>Limitations of activity</i> : restrictions in age-appropriate activities and limitations in mobility
Resilience: States and behaviors known to protect individuals from subsequent illness or injury.
<b>Subdomains</b>
1. <i>Physical activity</i> : involvement in a variety of activities related to fitness
2. <i>Interpersonal problem-solving</i> : active approaches to solving a hypothetical problem
3. <i>Home safety and health</i> : aspects of the home that reduce/increase likelihood of harm
4. <i>Family involvement</i> : the amount and type of activities done as a family and family support available
Risks: States and behaviors that are known to heighten the likelihood of subsequent illness or injury.
<b>Subdomains</b>
1. <i>Individual risks</i> : activities that threaten individual development
2. <i>Threats to achievement</i> : negative behaviors that threaten to disrupt social development
3. <i>Peer influences</i> : involvement with peers who engage in risk behaviors
Achievement: Meeting expectations for developmentally appropriate role performance
<b>Subdomains</b>
1. <i>Academic performance</i> : school accomplishments
2. <i>Work performance</i> : work accomplishments
Disorders: Diagnostic entities including conditions/injuries/impairments.
<b>Subdomains</b>
1. <i>Acute minor disorders</i> : eg, colds, tonsillitis, sprains, etc
2. <i>Acute major disorders</i> : eg, pneumonia, broken bones, hepatitis, etc
3. <i>Recurrent disorders</i> : eg, ear infections, asthma, allergies, etc
4. <i>Long-term medical disorders</i> : eg, arthritis, diabetes, epilepsy, etc
5. <i>Long-term surgical disorders</i> : eg, scoliosis, vision problems, hearing problems, etc
6. <i>Psychosocial disorders</i> : eg, speech problem, eating problem, learning disability, etc

tions that were used to create age, ethnicity, and socioeconomic variables. We based our conceptualization of adolescent socioeconomic status on the Entwisle and Astone<sup>23</sup> framework of financial, human, and social capital. We used 4 dichotomous indicators obtained from the demographic section of the CHIP-AE to measure socioeconomic status: financial capital—1) whether the teen's mother was currently employed and 2) participation (yes/no) in Aid to Families With Dependent Children, food stamps, or a school lunch program; human capital—maternal education (high school graduate—yes/no); and, social capital—family structure (single mother family—yes/no). Our previous work has shown that adolescents can validly report on these specific measures of socioeconomic status.<sup>24</sup>

The large number of scale or item scores provided by health status instruments hampers a parsimonious description of health. The CHIP-AE, for example, provides 6 domain and 20 subdomain scale scores for each individual. Moreover, mean scale scores do not capture the integrated, multidimensional aspects of health nor do they categorize individuals with similar health status into the same subgroup. To address these limita-

tions, we used a taxonomy of adolescent health and illness profile types to examine differences in patterns of health status between incarcerated and school sample youths. The method used to develop the health status profiles is described in detail elsewhere.<sup>18,19</sup>

### Data Analysis

Data analysis focused on comparing the patterns of health between the incarcerated youth and the comparison school sample. Differences between groups on the subdomain scale scores were calculated as a "difference score," the difference in means between the incarcerated and school samples, with the former as the reference group. In unadjusted analysis, 2-tailed *t* tests were used to identify statistically significant differences. We also calculated adjusted difference scores using multivariate linear regression that controlled for the effects of age, race, and socioeconomic status.

Youths were assigned to a profile type based on the pattern of good, average, and poor health on the CHIP-AE domains of Satisfaction, Discomfort, Resilience, and Risks. The cutpoints are set at scale scores of 17 and 23, which are  $\pm .60$  standard deviations from the standardized mean of 20. Each youth's score is characterized as high (above 23), average (between 17 and 23), or low (below 17) on each of the 4 domains. Because the domain scales are scored in the direction of their name, "good health" was a scale score above 23 for Satisfaction and Resilience and a scale score below 17 for Discomfort and Risks. The 13 mutually exclusive and exhaustive profile types are: Excellent Health profile—good health on 3 to 4 domains and no poor health; Good Health—at least average health on all domains, with excellent health on no more than 2 domains; Dissatisfied, High Discomfort, Low Resilience, and High Risks—poor health on 1 of the 4 domains only; 6 profile types in which health is poor on each possible combination of 2 domains; and, the Worst Health profile type—poor health on 3 or 4 domains.

Because the 2 samples had significantly different age distributions and age influences profile type assignment, we performed an age-matched analysis for the comparison of profile types between the 2 groups. Incarcerated youths were matched to the school sample by their age in years. School youths were randomly selected for the age-matched sample. The resulting age-matched groups had a sample size of 126 each. The sample sizes were smaller than the total sample of incarcerated youths, because not all individuals could be assigned a profile type because of missing data and there were many fewer school youths aged 17 to 19 years than incarcerated youths.

Lastly, we used the  $\chi^2$  statistic to test the null hypothesis that the profile type distributions do not differ between the 2 groups. For this analysis, the profile types were collapsed into 4 groups: excellent/good health profile types, poor health on 1 domain (included 4 profile types), poor health on 2 domains (included 6 profile types), and worst health.

### RESULTS

Incarcerated male youths were significantly older, (16.1 vs 14.6 years;  $P < .001$ ), were more likely to participate in at least 1 of 3 welfare programs (43.0% vs 33.1%;  $P < .05$ ), more likely to have a mother who was unemployed (25.0% vs 12.1%;  $P < .001$ ), and were nearly twice as likely to be from single parent families as boys in the school sample (50.3% vs 26.2%;  $P < .001$ ). The proportion of youths in the school sample from single-parent homes (1 in 4) is comparable to the national average of 24.3% for all teens in the United States.<sup>25</sup>

Incarcerated youth had significantly worse health in 5 of the 6 CHIP-AE domains, Satisfaction, Resilience, Risks, Disorders, and Achievement (Table 2). Specifically, at the subdomain level, in both unadjusted and age-race-socioeconomic adjusted analyses, incarcerated male youths had significantly poorer health compared with boys in school in their self-esteem, physical discomfort, acute dis-

**TABLE 2.** Difference in Mean CHIP-AE Scale Scores between the Incarcerated and School Youth Samples

Scale	Difference Score†	
	Unadjusted	Adjusted‡
Domain: Satisfaction		
Satisfaction with health	-1.6***	-0.6
Self-esteem	-2.6***	-1.8**
Domain: Discomfort		
Physical discomfort	1.7***	1.6**
Emotional discomfort	1.6***	0.9
Limitations in activity	-1.0*	-1.6**
Domain: Disorders		
Acute minor	2.3***	2.1**
Acute major	4.5***	4.5***
Recurrent	1.2*	0.7
Long-term medical	1.5*	1.6*
Long-term surgical	1.8**	1.7*
Psychosocial	2.3***	2.5**
Domain: Resilience		
Family involvement	-3.8***	-4.5***
Physical activity	-2.0***	-1.8**
Interpersonal problem solving	-0.8	-2.6***
Home safety and health	-1.4**	-1.3*
Domain: Risks		
Individual risks	8.0***	5.4***
Threats to achievement	2.6***	2.4***
Peer influences	7.5***	5.0***
Domain: Achievement		
Academic performance	-2.5***	-1.3*
Work performance	0	0.5

\*  $P \geq .01 < .05$ ; \*\*  $P \geq .001 < .01$ ; \*\*\*  $P < .001$ .

† A negative difference score denotes a lower mean scale score for incarcerated youth compared with youths in the school sample, and vice versa for scores with a positive sign. Subdomains were scored in the direction of their effect. Higher scores on Satisfaction, Resilience, and Achievement subdomains imply better health, whereas higher scores on Discomfort, Disorders, and Risks subdomains imply poorer health.

‡ Adjusted difference scores were obtained by regressing the scale score on respondent age, ethnicity, and socioeconomic covariates.

orders, chronic disorders, psychosocial disorders, family involvement, physical activity, risk behaviors, and academic performance. Differences at the subdomain level were generally of the same magnitude and in the same direction for unadjusted and age-race-socioeconomic adjusted results. Only the regression-adjusted analyses indicated that incarcerated boys had significantly lower interpersonal problem-solving ability compared with school sample counterparts.

Within the Disorders domain, the largest difference between the 2 groups was in acute major disorders. Item-level analysis of the Disorders domain indicates that more serious injuries occurred among incarcerated youth: more had a broken bone in the past year (23.0% vs 10.4%;  $P < .001$ ), more had a head injury in the past year (12.5% vs 5.8%;  $P < .01$ ), and more had had a gunshot wound in past year (19.8% vs 3.8%;  $P < .001$ ).

The distributions of the 13 adolescent health profile types for the age-matched samples of incarcerated and school youths is shown in Table 3. Three profile types—High Risks, High Risks/Low Resilience, and the Worst Health profile—described patterns of health for 69.8% of incarcerated youth versus 37.3% of the school sample ( $P < .001$ ). Even more striking is that only 6.4% of incarcerated

**TABLE 3.** Distribution of Health Profile Types for Age-matched Incarcerated and School Male Youth Samples

Profile Type	Incarcerated Youth ( <i>N</i> = 126) %	School Sample Youth ( <i>N</i> = 126) %
Excellent/good health		
Excellent health	.8	6.4
Good health	5.6	27.8
Poor health in 1 domain		
Dissatisfied	2.4	9.5
High discomfort	.8	.8
Low resilience	7.1	4.8
High risks	31.8	21.4
Poor health in 2 domains		
Dissatisfied/High Discomfort	.8	2.4
Dissatisfied/Low Resilience	4.8	4.0
Dissatisfied/High Risks	3.2	4.0
High Discomfort/Low Resilience	0	.8
High Discomfort/High Risks	4.8	2.4
Low Resilience/High Risks	19.8	5.6
Poor health in 3 to 4 domains		
Worst health	18.2	10.3

males were in the Excellent or Good health profile types, which characterized 34.2% of the school sample. The overall distribution of profile types between the 2 groups was significantly different ( $P < .001$ ) with a trend for incarcerated youths to be in poorer health profile types.

#### DISCUSSION

This study indicates that incarcerated male youths have remarkably poor health. This is pervasive across all aspects of health and the severity of problems is significantly greater compared with an inner-city population of boys in school. Our results are consistent with previous studies that found, compared with the general population of teens, incarcerated youth have more disorders,<sup>3,5-7,10,12,13,14,26,27</sup> a greater number and variety of risk behaviors that threaten to disrupt social development,<sup>3,5-8</sup> poorer academic performance,<sup>8,9</sup> and less family involvement and support in their lives.<sup>8</sup> This study also suggests that incarcerated youth have greater levels of physical discomfort, lower perceived well being, and fewer interpersonal problem-solving skills as compared with youths in the general population.

Although it is not surprising to find higher levels of such risk behaviors as aggressiveness, school failure, and less family involvement in incarcerated boys than those in the general population, it is not well recognized that incarcerated youths are more symptomatic, have a greater burden of morbidity, and have much lower levels of self-esteem than their male counterparts in school. Incarcerated youth reported significantly more traumatic injuries, particularly those that result from violence, similar to the findings of Conseur et al<sup>11</sup> in a study that linked a statewide hospital discharge database with juvenile justice records.

The negative discrepancy in health for incarcerated youth is most striking in comparisons of their health profile types, or overall patterns of health. Not only were two-thirds of the incarcerated youth described by the High Risks, High Risks/Low Resilience, and "Worst Health" profile types, the tre-

mendous disparity in their health compared with youths in the school sample is reflected by 6.4% of the delinquent youth having good or excellent health.

Incarcerated youth in this study were drawn from a consecutive sample of individuals admitted to a residential training facility in the state of Maryland. Many states are shifting treatment of juvenile delinquents from residential settings to community-based programs, because of evidence suggesting better effectiveness for the latter modality.<sup>28</sup> It is possible that the health status of teens in residential treatment may differ from those in community-based programs. Because our findings replicate those of other investigators who have studied single dimensions of incarcerated youths' health, it is likely that any differences attributable to locus of treatment (either type of treatment facility or state of residence) may be more quantitative (poorer health status for incarcerated youth) than qualitative.

The directionality of the statistical associations in this study is unclear, because this was a cross-sectional survey. The transition into incarceration itself may be responsible for some of the observed effects. For example, Kashani et al<sup>13</sup> found that one-third of incarcerated youths diagnosed with depression developed the condition during their stay in the correctional facility. One way to separate the effect of incarceration on health status would be to assess delinquent youth who receive different dispositions, including probation, community-based programs, and incarceration.

#### Implications of Health Profile Types

When a multidimensional approach to assessing health is used, it becomes clear that incarcerated youth have significant needs that go beyond "keeping them out of trouble." With the picture of poor self-esteem, poor family involvement, high levels of physical symptomatology, and high burdens of morbidity, our results indicate that, to fully address the health needs of this population, rehabilitative programs will need to take a broad, multifaceted

approach to improving health across multiple dimensions. Rehabilitating delinquent youth will require a team approach designed to address their basic health needs as well as modifying risk and antisocial behaviors.

One possible use of the adolescent health profile types is in tailoring rehabilitative program design based on individual needs. For example, individuals with poor health only in the Risk domain (the High Risks profile type) could receive interventions currently recommended for use in juvenile justice facilities to address such risk activities as substance use, unsafe sexual practices, and aggressiveness. Although targeting programs to specific risk behaviors is possible by examining responses to specific items in the CHIP-AE risk scales, there is growing evidence for the effectiveness of broad-based approaches to treatment of individuals with risk behaviors.<sup>29</sup> Boys in the High Risks/Low Resilience group will require interventions that address the same issues as those in the High Risks profile plus additional work to address health needs in the Resilience domain. These interventions may include improving their problem-solving skills needed in resolving conflicts with peers and providing enhanced aftercare programs that build a social structure of supportive adults to whom they can turn for advice and guidance. Lastly, youth in the Worst Health profile type had the greatest burden of health need, scoring in the poor health range for 3 or 4 of the 4 domains of health. In addition to the interventions already described, they may require additional treatment to address issues concerning poor self-esteem and physical and emotional symptomatology. Without acknowledging their mental and physical health needs and helping them improve their health in these areas, these boys are unlikely to be receptive to attempts to modify their risk and aggressiveness behaviors.

The patterns of health profile types reported in this study highlight the covariation of risk behaviors with other aspects of youth health. This finding lends support to the organizing concept of lifestyle, which denotes "an organized pattern of interrelated behaviors."<sup>29</sup> The importance of a lifestyle perspective is that it focuses attention on the adolescent as a person, rather than on specific risk behaviors. The question of whether intervention programs will have the greatest impact by focusing on specific health states and behaviors rather than on modifying a teen's life as a whole is an unanswered question meriting further research.

Despite the large number of boys who are incarcerated in juvenile justice facilities, there is no work that shows that health status of incarcerated youth is improved when they exit the juvenile justice facility. Therefore, a logical next step in this area of research would be an intervention study that assesses the health status of incarcerated youths using a comprehensive measure of health, applies interventions tailored to individual health need, and assesses treatment effectiveness. Treatment effects could be determined by measuring differences in health between the 2 time points or

in proportions of youth in the profile types with the highest and lowest health needs. One key question concerns the relative effectiveness of isolated wilderness camps, group homes, boot camps, large juvenile training institutions, and community programs for treating delinquent youth. The health profile types could be used in such a comparative study to control for baseline differences in health status or the CHIP-AE could be used as an outcome measure. This type of evaluation approach supplements traditional assessment of recidivism and educational attainment. Innovative approaches to evaluating existing rehabilitation programs of delinquent youth are called for to identify the most promising modalities and ultimately to address the growing public sentiment that crime among teens has reached crisis proportions.<sup>30</sup>

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