Analysis of Factors Associated with Truancy

Public Health Madison & Dane County

Background information

Every three years, over 20,000 middle and high school students from across Dane County participate in the *Dane County Youth Assessment* (DCYA). The DCYA is an extremely valuable tool for understanding behaviors, attitudes, conditions and risks for Dane County's adolescents. Epidemiologists from the Public Health Department for Madison and Dane County analyze DCYA data to inform our work with community partners.

Early in 2013, representatives of Dane County schools who are involved with administration of the *2012 Dane County Youth Assessment* asked Public Health Madison & Dane County to analyze factors related to school connectedness. School representatives reported that national research has found connection to school to be closely associated with academic success, and evidence based strategies to improve school connection exist.[1] Public Health was interested in conducting the analysis because we recognize the tremendous lifelong impact of educational attainment on myriad health outcomes.

About the analysis

The objective of this analysis was to identify groups at higher risk for poor connection to school, and to measure the association between certain modifiable factors and the outcome of poor connection to school. The findings would allow school personnel to target prevention strategies to highest risk groups, and address other factors that impact school connection and academic success. The focus of the analysis was Dane County high school students (grades 9-12). Students from 15 of 16 Dane County public high schools and one private high school participated in the *2012 DCYA*.

The first step of the analysis was to select the best measure of connection to school from questions included in the *2012 DCYA* survey. Various measures of connection to school were selected for analysis, and for each, the strength of its association with student-reported grades was measured. That cluster analysis found that whether or not students have skipped at least

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[1] Sulkowski, Demaray & Lazarus, "Connecting Students to Schools to Support their Emotional Well-eing and Academic Success," Communique Vol. 40, Issue7, publication of the National Association of School Psychologists. http://www.nasponline.org/publications/cq/40/7/connecting-students.aspx

one class in the past 30 days is more closely associated with grades than are other measures of connection to school that were included in the *2012 DCYA*.[2] Skipping class is negatively associated with grades. For purposes of this report, the outcome of skipping class is also referred to as truancy.

The next step was to measure the association between various factors and the **outcome** of truancy, in order to identify characteristics that are strongly associated with skipping classes. When considering factors that are associated with skipping class, it is important to remember that one cannot make inferences about causation, i.e. that the factor **causes** the outcome of skipping classes. In addition, factors do not exist in isolation in real life. Youth with a factor that is strongly associated with truancy may also be doing something else that is the true contributor. In this analysis, we did not try to control for any potential confounding factors. Nonetheless, the data is useful to identify at-risk groups and understand what else is going on with youth who skip class.

Understanding the charts

One way to understand the impact of a factor is to examine how likely students with that factor are to have skipped class, as compared to youth who do not have that factor. The group without the factor is considered a reference group. The likelihood of reporting truancy in the past month (the outcome) was examined for the following groups. Definitions are provided, and specific survey questions used are available upon request.

- Females, as compared to males

- Students in grades 11-12, as compared to those in grades 9-10

- LGBT students, as compared to those who are not

- Black, Hispanic, Hmong, Other Asian, and Other (mixed race) youth, each compared to White youth

- Students who are eligible for federal free or reduced lunch, as compared to students from higher income families

- Students who reported that their parent(s) often or always exhibit at least 4 of the 7 positive parenting traits included in Question #22 (know where I am when I go out, set clear rules about what I can and cannot do, have talked with me about my future plans, have consequences if I

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[2] The other measures of connection to school that were examined were: "I usually enjoy going to school"; "I feel like I belong at school"; and "There are adults I can talk to at school if I have a problem." The analysis examined the association between each of these four measures of school connection and high grades, as well as the association between the absence of each and lower grades.

break rules, encourage me to do well, monitor my school progress, and talk with me about things that bother me)

- Students who reported 3 or more hours of non-homework screen time on school days, as compared to those spending 2 or less hours (screen time defined as watching TV, playing video or computer games, using Facebook or the internet, or spending time using hand held computer devices)

- Students who reported staying up past 11pm on 4 or 5 nights school nights per week, as compared to students who did not

- Students involved in no team sports or extracurricular activities, as compared to those who are involved (involvement defined as participation in either team sports or extracurricular activities at least once a week; team sports includes practice, lessons and games; extracurricular activities defined as activities such as dance, drama, music, sports or school organizations)

- Students who reported being in special education **or** having an IEP, as compared to other students

- Students who said they disagree or strongly disagree with the statement, "There are adults I can talk to at school if I have a problem," compared to those who said they agree/strongly agree with that statement

- Students who reported long-term depression (6+ months) or significant symptoms of depression, as compared to those who did not (symptoms defined as feeling so sad or hopeless almost every day for at least two weeks in a row that he/she stopped doing some usual activities, within the past 12 months)

- Students who reported long-term anxiety (6+ months), **or** frequent anxiety symptoms in the past 30 days, as compared to those who did not (frequent symptoms defined as often or always: not being able to stop or control worrying, **or** feeling that problems were piling up so high that he/she could not handle them)

- Students who reported having been bullied as compared to those who were not (bullied defined as having been hit or pushed, picked on, made fun of or called names by other students in the past 30 days, **or** having been bullied, threatened or harassed through the internet or text messaging at least once in the past 12 months)

- Students who reported having smoked a cigarette, or used alcohol or marijuana in the past 30 days, as compared to those who used none of those
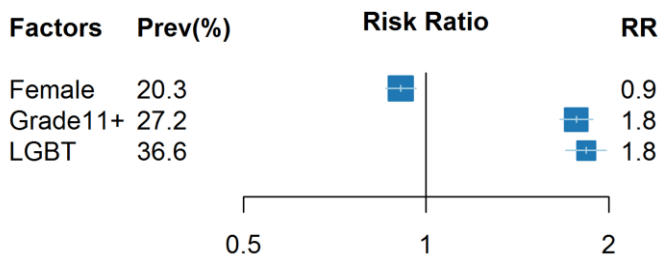
"Prev (%)" refers to the percent of youth in that group who reported truancy in the past month.

Risk Ratio (RR) is a measure of association between a factor of interest and an outcome (e.g. truancy) calculated as the ratio of the risk of having the outcome among those with the factor over (divided by) the risk of those who do not have the factor (the reference group). A RR of 1, represented by the vertical line in the graphs, means that the two groups show similar risks. A

RR greater than 1 means that the group with the factor was more likely than its reference group to report truancy; less than 1 means they were less likely. The magnitude of the RR tells us how much more likely, for example: 1.4 means 40% more likely; 2.2 means more than twice as likely; 0.6 means 40% less likely.
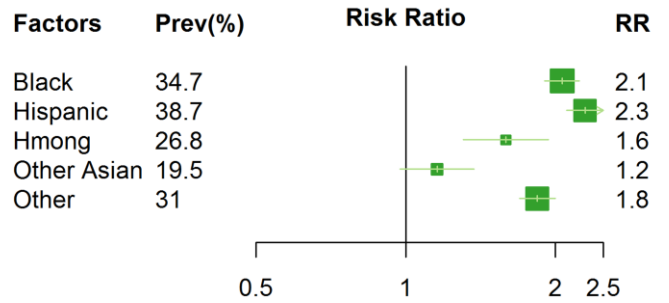
The size of the data square reflects how stable the estimate is; larger is more stable. The horizontal bar through the square is the confidence interval or margin of error. The larger the population, the more stable the data and the smaller the confidence interval range.
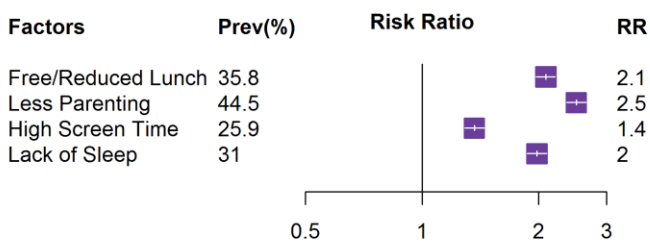
Gender, Age and LGBT

Factors	Prev(%)	Risk Ratio	RR
Female	20.3		0.9
Grade11+	27.2		1.8
LGBT	36.6		1.8

DCYA survey 2012 / PHMDC (Outcome:Unexcused absence in the last 30 days)

Race/Ethnicity

Factors	Prev(%)	Risk Ratio	RR
Black	34.7		2.1
Hispanic	38.7		2.3
Hmong	26.8		1.6
Other Asian	19.5		1.2
Other	31		1.8

DCYA survey 2012 / PHMDC (Outcome:Unexcused absence in the last 30 days)

Family and Home

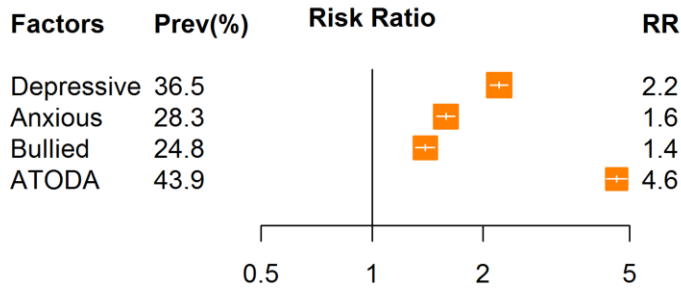| Factors	Prev(%)	Risk Ratio	RR
Free/Reduced Lunch	35.8		2.1
Less Parenting	44.5		2.5
High Screen Time	25.9		1.4
Lack of Sleep	31		2

Family and Home DCYA (Outcome:Unexcused absence in the last 30 days) survey 2012 / PHMDC

School and Activities

Factors	Prev(%)	Risk Ratio	RR
No Sport/Extracurriculars	34		1.9
Special Education	30.2		1.5
No Supportive Adult	28.7		1.5
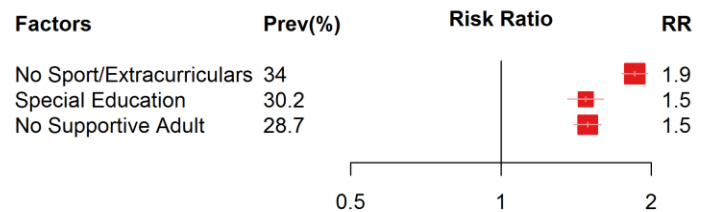
School and Activities (Outcome:Unexcused absence in the last 30 days) DCYA survey 2012 / PHMDC

Mental Health and Substance Use

| Factors	Prev(%)	Risk Ratio	RR
Depressive	36.5		2.2
Anxious	28.3		1.6
Bullied	24.8		1.4
ATODA	43.9		4.6

0.5   1   2   5

DCYA survey 2012 / PHMDC (Outcome:Unexcused absence in the last 30 days)

A closer look at substance use

The impact of substance use (having smoked a cigarette, or used alcohol or marijuana in the past 30 days), was examined separately for students in grades 9-10 and 11-12, each compared to same age peers who used none of those substances. The association between substance use and truancy was found to be stronger for younger high school students. Use of cigarettes, alcohol and marijuana were also examined separately, in each case compared to youth who did not use that particular substance. The prevalence of skipping class is particularly high among students who smoke cigarettes.

ATODA by age group

| Factors	Prev(%)	Risk Ratio	RR
ATODA 11-12	45		3.5
ATODA 9-10	40.4		5.4

0.5   1   2   6.5
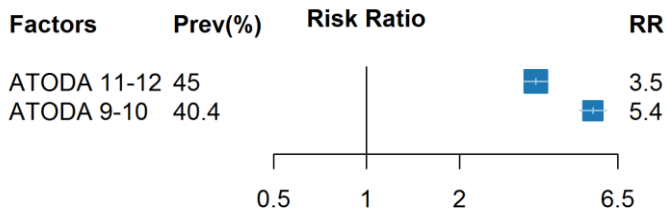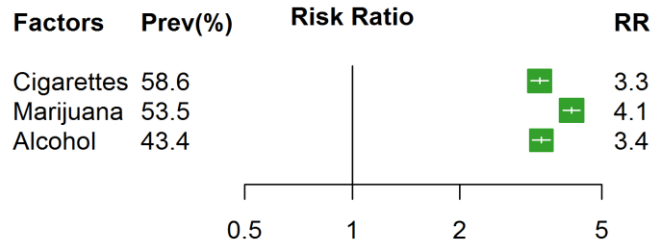
ATODA by age group (Outcome:Unexcused absence in the last 30 days) / DCYA survey 2012 / PHMDC

Alcohol, Tobacco, Marijuana

Factors	Prev(%)	Risk Ratio	RR
Cigarettes	58.6		3.3
Marijuana	53.5		4.1
Alcohol	43.4		3.4

0.5   1   2   5

Alcohol, Tobacco, Marijuana (Outcome:Unexcused absence in the last 30 days) / DCYA survey 2012 / PHMDC

A closer look at extracurricular activities

Additional analyses were done to better understand the association between various levels of participation in extracurricular activities and skipping class. The survey question related to extracurricular activities asked youth the number of days per week that they participate in activities such as dance, drama, music, sports or school organizations. The population of students who reported skipping class was found to participate fewer days than those who didn't skip class. The population of students who participate in extracurricular activities 5 to 6 days per week were found to have the lowest risk of skipping school. That is the reference group for the following chart. Compared to this lowest risk group, those who do not participate at all (0 days) are more than twice as likely to skip class (RR 2.4); those who participate in extracurricular activities 1-4 days per week are 40% more likely to skip (RR 1.4). This indicates that lower levels of participation are better than none.

Extracurricular Activities

Factors	Prev(%)	Risk Ratio	RR
Extra Curricular 0 day	33.7		2.4
Extra Curricular 1-4 day	20.6		1.4

0.5   1   2   3
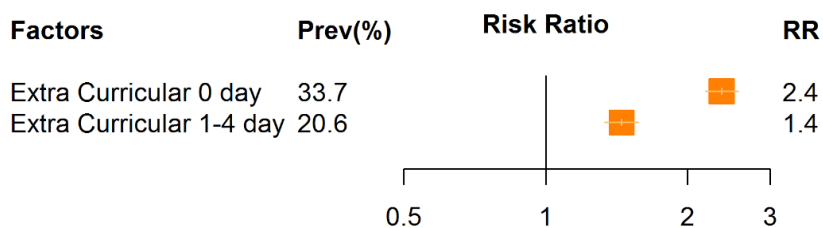
Extra Curricular Activities (Outcome:Unexcused absence in the last 30 days), reference: 5-6 days / DCYA survey 2012 / PHMDC

Summary of factors that are associated with skipping class

About **21%** of Dane County 9th- 12th grade students reported having skipped at least one class in the previous 30 days. There is no significant difference between males and females. The following factors were found to have a significant association with truancy.

Demographic and personal risk factors:
- lower income
- older high school students
- Hispanic, African American, Hmong and mixed race youth
- LGBT youth
- depressive symptoms, and to a lesser degree, anxiety symptoms

Behaviors:
- tobacco, alcohol or marijuana use
- frequently staying up late on school nights
- high screen time

School and social factors:
- no participation in team sports or extracurricular activities (and the risk of skipping class is lowest in students participating 5-6 days/week)
- lack of positive parenting
- victim of bullying
- no supportive adult to talk to at school
- special education or IEP

Considering prevalence along with association

It is also important to consider how many youth are affected by a factor. Factors that are more strongly associated with the outcome of skipping class and also affect a lot of youth might be contributing most to truancy in the student population. The following chart displays both association (risk of skipping class) and prevalence (number and percent of affected youth).

Factor	Number of youth with the factor who skipped class in the past 30 days	Percent of youth with the factor who skipped class in the past 30 days	Risk of skipping class compared to the reference group
Free/reduced lunch	1326	35.8%	2.1x as likely
Lack of positive parenting	997	44.5%	2.5X as likely
ATODA	2549	43.9%	4.6x as likely
• grades 9-10	788	40.4%	5.4x as likely
• grades 11-12	1542	45%	3.5x as likely
• cigarettes	790	58.6%	3.3x as likely
• marijuana	1675	53.5%	4.1x as likely
• alcohol	1861	43.4%	3.4x as likely
Depressive symptoms	1460	36.5%	2.2x as likely
Anxiety symptoms	1567	28.3%	60% more likely
Staying up late on school nights	1954	31%	80% more likely
No team sports or extracurriculars	1069	34%	90% more likely
No adult to talk to at school	976	28.7%	50% more likely
Victim of bullying	1884	24.8%	40% more likely
High screen time	1519	25.9%	40% more likely

Discussion

Skipping class was found to be negatively associated with student-reported grades, and more closely associated with grades than were the other measures of connection to school included in the *2012 Dane County Youth Assessment*. A number of factors were found to have a significant association with truancy. Several of them stand out as being strongly associated with the outcome of skipping class **and** affecting a lot of students: substance use; depressive symptoms; inadequate sleep; and lack of participation in extracurricular activities. While we cannot infer that these factors cause truancy, these findings may enable school personnel to prioritize prevention strategies and target them to higher risk groups. Influencing those factors, if modifiable, may have the greatest positive impact on truancy. Effective truancy prevention strategies may, in turn, result in improvement in some of these factors.

This type of examination of *Dane County Youth Assessment* data for the entire population of Dane County adolescents provides greater understanding of factors that impact our youth, in order to inform community efforts to address them. In addition to interpreting local data, it is a primary role of Public Health to explore effective strategies, particularly policy solutions. Public Health Madison & Dane County would welcome opportunities to partner with Dane County schools to identify and address issues of mutual concern.

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