

SKILL PROFICIENCY AND PEER INFLUENCES ON SUBSTANCE USE

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Abstract

This study is designed to assess the impact of self professed skill proficiency and peer influences on substance usage. Three time points were assessed longitudinally, when the subjects were in seventh (n = 451), tenth (n = 404), and twelfth (n = 396) grades, in 1989, 1992, and 1994 to 1995 respectively. Participants rated their skill levels in comparison to other kids their age at sports, hobbies, artistic, and academic club activities. Additionally, participants reported on alcohol, tobacco, and marijuana usage. Peer influences were assessed through two self reported items, and regression analyses were utilized to measure statistical significance. Different drug use pattern emerged for some of the groups, though these were not consistent across all three time points. Friend's actual substance usage emerged as a greater predictor of the participant's substance usage than either their skill proficiency at various activities or their self stated levels of peer influence. There was some evidence that the sum total of activities the participants reported being proficient at had a negative association with substance usage, as well as evidence supporting an insulating effect of peer influence on marijuana usage.

Skill Proficiency and Peer Influences on Substance Use

There are many factors that come into play concerning substance usage and the adolescent. Risk taking propensity plays an important role, a factor believed to be regulated by genes and the environment, or more aptly the interaction of the two (Connor, Hellemann, Ritchie and Noble, 2010). In addition, the presence or absence of protective factors can insulate or expose an individual to varied levels of alcohol and drug usage risks (Newcomb and Felix-Ortiz, 1992). There has been considerable research on the topic of adolescent drug usage, and the effect of peers on adolescent substance use has not escaped the lens of inquiry.

Peer influence may hold considerable sway over the path of an adolescent's behavior as they progress through the stage. While some components of peer pressure have been questioned in the literature (Ungar, 2000), it is not doubted that there is a linkage between peers and an individual's behavior. Instead, the criticism is due to the conceptualization of the individual being led blindly into taking part in activities they do not want to partake in. Instead, it may be that adolescents succumb to peers influence in order to enhance their power and social standing within their group. While this may change the mechanism that accounts for peer influence, it does not change the occurrence of it.

This view, that the adolescent is engaging in substance use in order to increase their social standing within their group, carries with it an important testable conclusion. Different peer groups should have different views and habits concerning substance usage. An athletic oriented group may frown upon smoking cigarettes, as it has a tendency to decrease lung capacity, whereas an artistic group may hold no such viewpoint. Also, a member of a group that already has high status within their group should have lower propensity to be influenced by fellow group member's substance usage, but instead would be the peer that sets the standard for that group.

The purpose of this paper is to look at skill level within different categories in coordination with the adolescent's substance use and level of peer influence in order to see if there are any connections.

Literature Review

Different adolescent peer groups' having differing substance use patterns has been explored in prior studies. One such study asked adolescents which groups they affiliated with, as well as their personal alcohol, tobacco, and marijuana usage (Verkooijen, de Vries & Nielsen, 2007). The study found that individuals that identified with the groups designated as pop, skate/hip-hop, techno, and hippie reported higher substance usage, while individuals in the sporty, quiet, computer nerd, and religious groups reported lower substance usage; each group having varying usage levels amongst each substance. While the study looked at differing drug usage patterns amongst the peer groups, it did not look at the status of the individuals within the groups, which would be an interesting way to observe the effect of group status on peer influence.

One way of assessing substance usage and status is by analyzing the usage of those that have won awards in scholastic, artistic, and athletic activities as compared to those that have not. A 1985 study (Hundleby) looked at 2,048 ninth graders self reported substance use and achievements among varying subjects including art, leadership, and athletics. It was found that those that had received awards had significantly lower substance use patterns than their peers, particularly concerning tobacco usage.

Another study looked at the self reported alcohol, marijuana, and tobacco usage of elite student athletes in comparison to non-athlete adolescents and young adults (Peretti-Watel, Guagliardo, Verger, Pruvost, Mignon and Obadia, 2003). It was found that the elite athletes had

lower usage rates amongst all three substances, while athletes that perform in team sports had higher alcohol consumption than solo athletes. It is tempting to say that high status in a peer group correlates with lower peer influence based on the two prior studies, the supporting evidence just as likely represent that high achievers and elite athletes were influenced by their peer groups to abstain from certain substance usage. Neither study looked at the effects group status on peer influence, but instead focused on achievement status and substance usage.

Even so, the idea that status within a group controls the direction of peer influence is a logical one. Power dependence is a framework that suggests a peers' influence is mediated through the individual's relative position in the group hierarchy, as well as through the balance of power within the group (Vargas, 2011). Those with power within a group may make decisions, including which parties to go to and where to hang out, as well as what activities (including substance usage) are engaged in when the group is together. It was observed in Robert Vargas' study that having balanced power relations helped insulate members of the group from peer pressure to conform to one standard. While the author presents a compelling observational study, a test of its conclusions is necessary.

In the present study, connections between self assessed skill level in varied activities was utilized as a proxy for group belonging, and its association with levels of alcohol, marijuana, and tobacco usage were assessed. The hypothesis that different patterns of substance use would emerge for the different groups was explored. In addition, connections between specific activity skill levels, and peer influence were examined, with the hypothesis that greater skill level scores will create a buffering effect on peer influence

Method

Sample

The data that will be used in this study is drawn from participants of the Family Transitions Project (FTP; see Conger and Conger, 2002 for a broad overview). This was a longitudinal study that followed families, and in particular a target child, beginning in 1989, when the target was in seventh grade. A predominant majority of the FTP participants were ethnically and racially European Americans. Participants completed a series of questionnaires when interviewers visited their homes; participants were paid approximately \$10 an hour for their participation. The three assessment time points utilized in this study took place during the participants seventh, tenth, and twelfth grades, in 1989, 1992, and 1994 to 1995 respectively. The 1989 sample had 451 respondents, the 1992 sample was composed of 404 respondents, and the 1994 sample consisted of 396 participants.

Measures

Participants were asked how well they do certain activities in comparison to other kids their age, using a three point scale from worse than most kids to better than most kids. The activities listed were organized sports, hobbies, artistic activities, chores, and school activities. Exemplars were given for each category. It is important to note that the school activities exemplar did not include homework or studying, but instead listed club and committee memberships, such as yearbook and holding a class office. While this question does not get to the heart of group membership, it does give information on the self identification of the individual, and should be a decent gauge of how the individual defines themselves. For this analysis, the “chore” information was dropped, as this category does not appear to be a very good identifier of peer group membership.

From these items, two other variables were created. One newly created item scored if the participants felt that they were better than other kids their age at any activity. The other new item was the sum of the four activities in which the participant considered themselves better than other kids their age. These variables were used to test if there was an effect of general skill proficiency on peer influence, regardless of the type of skill.

Peer influence was gauged by two items. One question asked participants that if they found their friends were leading them into trouble with the police, would they still hang out with them. This was rated on a four point scale from definitely no to definitely yes. A second item asked them if they would like to be like most of their friends on a five point scale from strongly disagree to strongly agree. These two items were not combined to create a peer use factor, but instead used both independently in the analyses. Participants were also asked how many of their close friends used various substances, including tobacco, alcohol, and marijuana, on a five point scale from none of them to all of them.

Self reported substance usage was gauged by three variables. One item asked if they began drinking within the last year, while a second asked if they began taking drugs within the last year. Both were answered with a simple yes or no. Unfortunately, no similar question was asked related to tobacco usage, and these two questions were only asked at the first and second time points.

The third self reported substance use item asked the participants about their own usage habits on various substances over the last year. Of interest to this study was their answer to their usage of tobacco, beer, liquor, and marijuana. In the seventh grade, this question was graded on a five point scale, from never scored at zero, to six or more times scored with a four. The tenth and

twelfth grade item was presented on a six point scale, consisting of zero for never to five representing substance usage every day.

Data Analytic Strategy

Regression analyses were conducted to test the participant's skill levels on usage of each substance. An advantage of using regression analyses is that the equation can represent interactive effects of the reported skill levels by grade, representing an additional cumulative effect to heightened skill level duration, as opposed to testing each time point separately with independent t-tests. Further regression analyses were conducted to test the effect of considering yourself better than your peers at any activity, as well as if there was an effect on substance usage by the total number of activities an individual claims proficiency at.

Regression equations were also created for self reported peer influence by activity proficiency, and again, were tested against proficiency at any skill as well as the sum total of activities that the participants rated themselves better than their peers at. Drug usage by friends substance use was tested, as well as drug usage by self rated peer influence levels. Lastly, a regression line was created to assess drug usage by peer influence and self rated activity proficiency. This was completed to assess potential interaction effects.

Results

For seventh graders, sports and artistic proficiency significantly predicted tobacco use, though the sports variable positively predicted smoking ($B = .145$, $t(449) = 2.67$, $p = .0079$), while artistic activities negatively predicted smoking ($B = -.0904$, $t(449) = -1.99$, $p = .0478$). Liquor use was also positively predicted by sports proficiency ($B = .05518$, $t(449) = 2.14$, $p = .0326$).

Expertise area/ Grade	Seventh grade	Tenth grade	Twelfth grade
Sports	+ smoking + liquor	+ still hang out	
Artistic	- smoking	- still hang out	
Hobbies		- smoking, beer	
School		- smoking	- smoking, - marijuana

Table 1: Summary of statistically significant predictors. (+) represents positive association, (-) represents negative association. Still hang out is the variable concerning still hanging out with friends, even if they could get you into trouble with the police.

For tenth grade, hobbies proficiency was a statistically significant negative predictor of smoking ($B = -.330$, $t(401) = -2.97$, $p = .0037$), as was scholastic proficiency ($B = -.325$, $t(401) = -2.719$, $p = .0068$). Proficiency at hobbies also negatively predicted beer usage ($B = -.248$, $t(401) = -2.54$, $p = .012$). For twelfth graders, proficiency at scholastic activities negatively predicted tobacco use ($B = -.423$, $t(394) = -3.07$, $p = .002$) and marijuana use ($B = -.056$, $t(394) = -2.18$, $p = .030$).

Liquor use in seventh grade was positively predicted by the sum of self perceived proficiency across any activity ($B = .038$, $t(449) = 2.40$, $p = .017$). The sum of expertise in tenth grade negatively predicted tobacco use in tenth grade ($B = -.15633$, $t(401) = -2.13$, $p = .034$), as well as beer usage ($B = -.141$, $t(401) = -2.23$, $p = .013$). In twelfth grade, being an expert at any activity negatively predicted marijuana usage ($B = -.076$, $t(394) = -2.25$, $p = .025$), as did the sum of activities one claimed to be proficient at ($B = -.038$, $t(394) = -2.25$, $p = .025$).

Sport proficiency in tenth grade positively predicted the participants stating they would still hang out with their friends, even if they were leading them into trouble ($B = .190$, $t(337) = 2.85$, $p = .005$). Proficiency in art in tenth grade negatively predicted continuing hanging out with friends if they were leading them into trouble ($B = -.142$, $t(337) = -2.39$, $p = .017$), as did proficiency at school clubs in tenth grade ($B = -.182$, $t(337) = -2.504$, $p = .013$). The sum of

categories one expressed proficiency at negatively predicted stating the participant wanted to be like their friends in tenth grade ($B = -.105$, $t(401) = -2.043$, $p = .042$).

Stating you would still hang out with your friends even if they would lead you into trouble ($B = .163$, $t(354) = 4.33$, $p < .01$), and friends liquor usage ($B = .269$, $t(354) = 7.31$, $p < .01$) positively predicted the participants beer usage when placed in the same regression equation, though friends alcohol usage was a larger predictor. This overall effect became larger as the children progressed through the grades, with the R squared of the regression line increasing from .20 for seventh grade, to .47 in twelfth grade, though the relative size of the coefficients changed as time progressed (following your friends even if they would lead you into trouble; $B = .326$, $t(335) = 4.66$, $p < 0$; friends beer usage; $B = .609$, $t(335) = 12.726$, $p < 0$). For marijuana use in twelfth grade, wanting to be like your friends was a weak negative predictor ($B = -.030$, $t(318)$, $p = .09$), while friends actual marijuana usage was a strong positive predictor of usage ($B = .363$, $t(318)$, $p < 0$).

Discussion

Some patterns emerged in the data analyses, but not necessarily in the way originally hypothesized. The different activity groups did not have consistent substance use results across all three time points, though participants being better than their peers at scholastic activities did predict diminished levels of smoking in both tenth and twelfth grades. Perhaps the age range was too large for some patterns to emerge as, for example, there was no reported marijuana usage for the subjects in seventh grade. While proficiency across time in a subject was looked for, no statistically significant results emerged to report.

An interesting finding that did come about was that those who claimed higher than average skill in sports during seventh grade reported higher levels of smoking at the same time.

This could be due to tenth grade sports not yet being at the same competitive level as seen in high school athletics, so the participants are not as concerned with the added health benefits of not smoking. In addition, perhaps many of the sporting activities engaged in are different for seventh graders than for those in high school.

Those that stated higher proficiency in sports during tenth grade also reported higher rates of continuing to hang out with their friends, even when their friends could get them in trouble with the police. The reverse was seen for those that claimed higher proficiency at artistic endeavors in tenth grade. This may be linked with many artistic activities involving solitary work, while many sporting activities involving teams. This is consistent with the finding that elite student athletes drink more when their sport is team oriented rather than a solo sport (Peretti-Watel, Guagliardo, Verger, Pruvost, Mignon and Obadia, 2003).

While limited findings emerged from looking at specific activity proficiency, the sum of activities with claimed proficiency in tenth grade appeared to offer a protective effect on substance usage, as well as on peer influence. Lower tobacco and beer consumption, as well as lower ratings of wanting to be just like their friends was observed with a higher sum of activity proficiency. In twelfth grade, the sum of activity proficiency, as well as any claimed activity proficiency, offered a buffering effect against using marijuana. The only single group that showed negative statistical significance on marijuana usage in twelfth grade was the academic group. Perhaps the effect seen from the proficient academic group was strong enough to buoy the rest of the groups when all of the proficient activity assessments were merged.

Another interesting finding emerged concerning marijuana usage in twelfth grade. It appeared that participants wanting to be like their friends provided a weak protective factor against usage. Simultaneously, a stronger positive factor towards marijuana consumption

occurred if their friends used marijuana. From this, it would appear that self-reported peer influence was a stronger protective factor against marijuana usage than it is a predictor for it.

It is quite important to note that most of the effects sizes observed were quite small, many explaining less than one percent of the variance in the data. Only statistically significant results were reported, from statistically significant regression lines. With a larger sample size, perhaps more of the hypothesized results may have been statistically significant, yet the effect size would still be necessarily small. As Hundleby (1985) reported about his outstanding versus non-outstanding student data set, the differences between the two groups were also quite small.

Perhaps a reason for the small effect sizes concerned the way in which activity proficiency was assessed. Utilizing a three point scale presented the participants with small increments of differentiation from their peers. In addition, the method of assessing activity proficiency might be less accurate than methods utilized in prior studies, either by assessing those that won awards (Hundleby, 1985), or those that achieved elite athletic status through intense athletic competition (Peretti-Watel, Guagliardo, Verger, Pruvost, Mignon and Obadia, 2003). While the variable utilized in the present study assessed internalized beliefs about abilities, it may not have accurately presented how well the individual actually performed at the task.

Again, drawing from the fact that the activity proficiency items were scored on a three point scale, it stands to reason that some participants who ranked themselves as better than the average kid at an activity may not be leaders within that activity. For example, the worst member of a basketball team may rightfully state that they are better at basketball than the average kid, because the average kid is not even on the basketball team. These participants should still follow the substance use patterns of their broader peer group if a peer influence by group effect exists,

but as lower ranking members of the group, they may have higher propensity to influence by their peers.

Lastly, perhaps the broad base of each activity category had an effect on the results by being too inclusive of differing subgroups. The artistic group would contain those interested in the dramatic arts, musicians, and painters. The sports group might have contained swimmers, football players, and bowlers. These example subgroups may very well have differing views on substance usage, as well as overall varying levels of peer influence, similar to the differences found in alcohol consumption and solo athletes when compared to members of athletic teams (Peretti-Watel, Guagliardo, Verger, Pruvost, Mignon and Obadia, 2003). A more concise set of subgroup areas would help to alleviate these types of concerns.

Future Directions

While support for this studies two hypotheses was not found, they were also not disproven. The rationale for group status having an effect on an individual's level of peer influence is still quite valid, though perhaps not discoverable when the assessment of group status is conducted through self assessed category proficiency. More robust measurement of group status should be pursued in order to better assess the effects of group status on peer influence susceptibility. Striving towards a more complete understanding of peer influence is warranted, as discovering its mechanisms holds many important implications; particularly in creating substance use prevention strategies.

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