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Young and Reckless: An Analysis of Methods to Reduce Underage Drunk Driving in Merced

Underage drinking and driving is a well-studied phenomena in American adolescents. It has become more and more recognized as a legitimate issue. Alcohol-impaired driving contributed to over 12,000 fatalities and an approximate 500,000 years of life lost in the year of 2014, according to one study (Stahre et al. 2014). The CDC reports through the Youth Risk Behavior Survey of 2017 that about 30% of high school students had consumed alcohol in the past month, and 17% had ridden in a car with a driver who had been drinking alcohol. In this paper, I will review existing studies on underage drinking and driving, specifying the data to Merced where applicable. I will discuss why this phenomena occurs, according to the existing literature. I will then discuss and analyze existing models for reducing underage drinking and driving. Finally, I will synthesize the best parts of the existing models into a single model that can be applied to Merced.

Literature Review

The STOP Act, passed by Congress in 2006, requires annual reporting on underage drinking in all 50 states. From this, we can extrapolate relevant data about the problem in California specifically. The source can be trusted, as it is a government agency, and since they are offering no insight other than the raw data, bias is largely absent from the report. The report found that around 23% of minors aged 12-20 had drank some alcohol in the past

month. It also cites 503 minors dying alcohol-attributable deaths, for approximately 30,247 years of life lost. It should be noted that age range from 12 to 14 significantly reduces these numbers - only 3.1% of this demographic reported drinking in the past month. It is important to identify the discrepancies in age because these numbers are heavily inflated when localized to Merced. An article from 2014 in the Merced Sun-Star cites the California Healthy Kids Survey to report that 32% of middle schoolers have tried alcohol by the time they turn 14. That same survey found that roughly 13% of seventh graders in Merced were currently using drugs or alcohol, a ten percent increase compared to the state averages.

The above research is relevant due to the nature of early drinking and associated behaviors. There is an established link between individuals who began drinking at an earlier age and risk of being involved in alcohol-related vehicle accidents (Higson et al, 2002). While the study involved data about drinking behaviors that was self-reported, it was still able to show that the younger the individual was at age of first drink, the greater his/her likelihood of driving after drinking too much. In Merced, where adolescent access to alcohol is above national averages, any actions taken to curtail underage drinking and driving must also address those who have already begun drinking.

The causes for underage drinking are disputed, but several factors have been identified as influencing underage drinking (and subsequent driving). Proximity to alcohol vendors is seen to have significant effect on

underage drinking. One study from 2009 demonstrates a significant increase in risk of underage drinking, as well as underage drinking and driving, if an alcohol vendor is within .5 miles of home (Truong and Sturm 2009). The study takes into account socioeconomic factors while examining 50 zip codes in the state of California. It relies partially on survey response, which opens doors for inaccurate data if the respondents are not answering honestly. The study accounts for a variety of individual factors as well as median household income, and from this appears to be a reliable source. The study notes the increased prevalence of alcohol vendors in lower-income areas; it states that if the neighborhoods in the lowest quartile in terms of average income had the amount of vendors that the top quartile had, binge drinking could be reduced by .8%, while driving after drinking could be reduced by 1.9%. In other words, access to alcohol plays a clear, if marginal, role in underage drinking and driving. It is important to understand this relationship considering that the majority of Merced south of I-99 has no access to supermarkets and relies on fast food and liquor stores for “groceries”.

Another approach to the issue which has recently emerged is examining the familial relationships of the adolescents, and correlating that to substance abuse. One such study examined these familial relationships in Ireland. Since the study took place in Ireland, its relevance to Merced, let alone the United States, could be called into question. It's worth noting that Ireland has particularly high rates of alcoholism. Despite these things, the nature of the study as a qualitative survey indicates that this study is largely

applicable to Merced, under the assumption that familial relationships are relatively similar between the two. The study emphasized three major factors that can affect substance abuse risk: “parent-child attachment”, “parenting style”, and “parent and sibling substance abuse” (McLaughlin et al., 2016). The influence of parental and sibling substance abuse is of particular interest to this paper, as about 18% of Merced County adults report heavy drinking, and 33% of all vehicle-related deaths in the county involve alcohol, according to data provided by County Health Roadmaps and Rankings.

Another study focusing on parental relationships attempted to correlate the prevalence of adult alcohol abuse with health outcomes in their children (McCutcheon et al., 2018). Individuals were selected via alcohol abuse treatment centers, and interviews were conducted with them and their first-degree relatives through the Semi-Structured Assessment for the Genetics of Alcoholism (SSAGA). Follow-up interviews were conducted every two years, but it is worth noting that the sample size dwindles with each follow-up interview. About 60% of participants had at least one parent with an alcohol use disorder. The associated risk with having one parent with an alcohol use disorder made the likelihood of first experiencing alcohol as a child 28% higher- and this risk was even higher in those with two parents suffering from alcohol use disorders. Notably, the age of initiation was highest in those who had no parents struggling with alcohol use disorders. Looked at as a whole, this data suggests that the more prevalent alcohol use is in the parents, the younger the child is when first initiated into alcohol use.

In a county in which 1 in 5 adults reports heavy drinking, this means many children are exposed to alcohol early in life, and with that comes several associated risk factors which need to be addressed when tackling underage drinking and driving.

Not only are family norms important, but the influence of peers has also been shown to have significant impact on underage drinking (Zhang et al. 2012). It has been shown that, when controlling for drinking behavior, the risk of adolescent drinking and driving is significantly influenced by the individual's peers. Another study showed that, when accounting for outside factors, the normative values of an individual's 3 closest friends were a predictor of the individual's chance of drunk driving (Grube and Voas 1996). They predicted risk by asking if the individual's 3 closest friends would disapprove of drunk driving, and found that the less the individual's friends cared, the more likely it was that he/she would drink and drive. The implication of this fact is that any programs designed to reduce drinking and driving must take peer behavior into account. In other words, the program has to reach as many people as possible so as to change the normative values of the entire group.

Analysis of Existing Models

Several studies have been conducted which propose methods to reduce underage drinking and driving. One such study proposed that enforcement should exist as a general deterrence, not just a punishment for the offender (Johnson 2015). Through this, the scientists created a media

campaign promoting a new device better capable of catching drunk drivers, along with increased police effort to enforce DUI laws. The device was distributed among local police departments in two college towns. The media campaign consisted of debuting the new device and fielding questions from the press about the device, as well as demonstrations of the device at community centers and local high schools. This was done in conjunction with high visibility enforcement (HVE), as police were instructed to patrol high-visibility traffic areas. The idea was to display to as many people as possible that the police were actively enforcing DUI laws. The study was able to significantly reduce drinking and driving in all age groups. What's more, the rates of DUI incidence remained lower years after the experimental portion of the study was over.

This model worked well in placing its value on deterrence and showed verifiable results, but it is not without its drawbacks. For one, it required serious effort on the part of the local police, at least in terms of time spent; as noted under the methods section, "The project paid for three large HVE events (coordinated with media coverage) as well as more than 200 overtime hours for officers to conduct roving patrols" (Johnson 2016). On top of this, it relies heavily on police officers to enforce the law in a fair and just manner, officers who can be subject to bias and prejudice. While this study has merits in its philosophy of deterrence, when applied to the Merced area, an approach that is less liberal with its use of police enforcement is preferable due to the tenuous relationship between Merced's police and the

residents of Merced. The goal of the intervention is to reduce underage drinking and driving, not contribute to the criminal records of those who are disadvantaged in the first place. This does not rule out the use of police as a deterrent - rather, the model for Merced should not rely so heavily on police as this model does.

Another study took a community-based approach, offering a local program in several towns in Texas which emphasized positive thinking (Salazar et al, 2008). The program, titled Shattered Dreams, consisted of a reenactment of an alcohol related crash with actor, an overnight retreat that emphasized positive peer influence and leadership skills, and an assembly at the end of the program, totaling about 13 hours of direct participation in the program. It is important to note that the goal of Shattered Dreams was not to reduce underage drinking and driving, but rather emphasize leadership skills and smart decision-making with the hopes that being mindful of these traits would reduce incidences of drinking and driving. Following exposure to the Shattered Dreams program, about 61% of students said they believed that their friends would be less likely to drink if exposed to the program. Beyond this, 85% reported that they believed their friends would be less likely to drink and drive if exposed to the program.

While the data for this model is almost entirely self-reported, it still highlights the importance of peer behavior and positive influence on how adolescents perceive drinking. Normative values require time to change, as individuals come to recognize the faults in the behavior and change accordingly. As

such, it is difficult to quantify the success of the model. Another fault of this model is that it does not account for real incidents of underage drinking and driving; while students may self-report that they are less likely to drink and drive, it does not offer any actual data for the DUI rates prior to and after the program. Having said that, its theories about behavioral change over time align with the transtheoretical model of change, and suggest that a successful model requires gradual change rather than an “all or nothing” approach to the problem.

Synthesis of Original Model

This new model will synthesize various elements from each of the aforementioned models, as well as draw on existing research to inform policies of the program.

The first step of the program is to reduce the number of liquor stores in the city limits. If it were as simple as reducing the number of liquor licenses permitted in the city, this would be less complicated. However, these liquor stores are filling the niche that supermarkets would normally be serving, as many Merced residents rely on liquor stores for food. It has already been well-established that South Merced is in desperate need of a supermarket; it is what is known as a food desert, areas where access to healthy food options is limited or nonexistent. As such, successful implementation of this policy would require that a supermarket be constructed to serve South Merced. With a reliable source of fresh produce and nutritious options, liquor stores would see their roles reduced in the

community. There is already plenty of evidence to suggest that constructing a supermarket in South Merced would exponentially benefit its residents. With that in mind, this model offers yet another reason to support a supermarket in South Merced: it would reduce underage access to alcohol, thereby reducing the rates of underage drinking and driving.

The second aspect of this model draws on the concept of general deterrence. It asks that police officers make a more concerted effort to check for DUIs in high density traffic areas. The police department will hold a press conference to announce that it is taking extra efforts to catch drunk drivers. A media campaign comprising of radio advertisements will also air over local Merced radio stations to inform the public about the new efforts to catch drunk drivers. The idea behind these actions is to inform as many people as possible, and then to reinforce those messages with high-visibility enforcement. On Friday and Saturday nights, high density traffic areas will be patrolled, with officers looking specifically for drunk drivers. Potential areas for such patrols are the intersection of Yosemite and G Street, the intersection of 16th and G Street, and the intersection of R and Main Street. For South Merced, a good location for a roving patrol would be at the intersection of Childs and Highway 59, both of which experience heavy traffic. This may require some overtime for some officers, as the additional units required to patrol the areas will require more officers. It is important to not confine the areas of patrol to South Merced alone, despite the higher rates of alcoholism there, so as to avoid potential biases on the parts of the

police. As such, various checkpoints should be set up throughout the city of Merced. Making it clear that drunk driving is not tolerated via active enforcement would reduce drunk driving rates throughout the population, not just for those who are underage.

The final and arguably the most important aspect of the program is to support community outreach programs that emphasize responsible decision-making in the children of Merced. The program can consist of police holding talks about the dangers of drunk driving at the local high schools. The program can model itself after the Shattered Dreams program in Texas, which consisted of student assemblies as well as an overnight retreat teaching leadership qualities. After-school programs could also be implemented at the elementary schools in Merced, offering students activities such as board games or video games as well as sports to keep them from getting into trouble elsewhere. These programs should all be reinforcing the philosophy of a positive mindset and healthy decision-making. This part of the program is where the foundation for healthy behaviors will be set for the children, informing their future decisions about drinking and driving.

There are issues with this model that would need to be addressed, should the policy be implemented by the city of Merced. For one, it would require that South Merced build a supermarket, which would most likely require outside investment to attract business. Secondly, these programs all

cost money. A tax on alcohol sales could help to pay for these programs, but would likely face local resistance to new taxes.

Conclusions

There are many factors at play when it comes to addressing underage drinking and driving in Merced. It would appear that many of the underlying causes for such behavior are systemic, and would require public projects which are beyond the scope of this analysis. An examination of the costs of creating new businesses, such as a supermarket for South Merced, would aid in understanding how to better serve the community. A cost analysis for after-school programs would also help to understand how much it would cost to run such programs. A closer look at the numbers involved in creation of new taxes would also give the city a better idea of how to budget this project. An analysis of the existing liquor stores in Merced, as well as their proximity to residential areas, could yield more data about areas of the city where the youth have greatest access to alcohol, and help focus the program to have the biggest impact. It would also help to gauge the general population of Merced's interest in such an undertaking before making any concrete decisions regarding the program's implementation.

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