

What is the impact of alcohol consumption on students?

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1 Introduction

In this study we tried to understand what can be the impact of alcohol on students and their results. We also searched what might be the factors of important consumption. We used research made on students in Portugal from two schools from 15 years old to 22 years old. These students were taking math and/or Portuguese classes.

2 Weekly consumption of alcohol

First, let's see the distribution of students based on their alcohol consumption. This bar chart shows the number of students per weekly consumption.

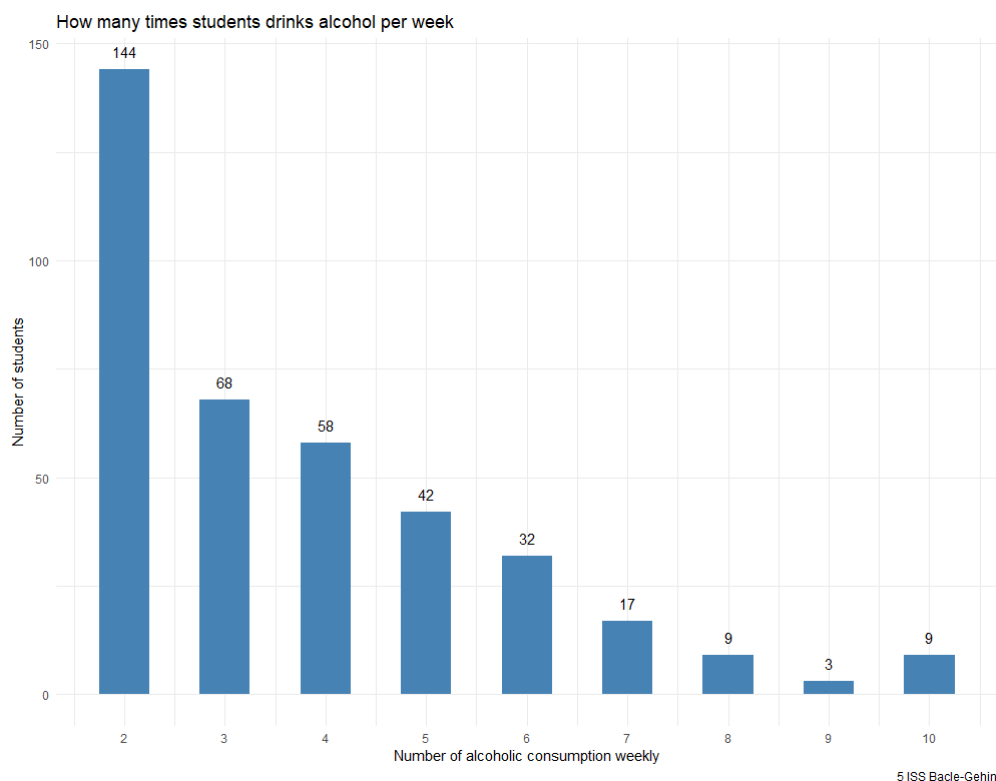


Figure 1: Number of student per alcohol consumption

We can see that the minimum consumption is two, which can be surprising. However, we think this is due to the fact that it is an average. Even if there are weeks where you do not drink when you do an

overall average it will appear that you might drink a little bit every week. We observe that the majority of students are not drinking “too much” even if some can drink until ten times a week.

3 Does alcohol cause failures?

We want to see how alcohol consumption might impact the number of grade failures. In the following graphic we calculated the average number of grades failed based on the number of weekly alcohol consumption. Note that we have zero failures for zero and one because there were no students that drink less than two times in a week.

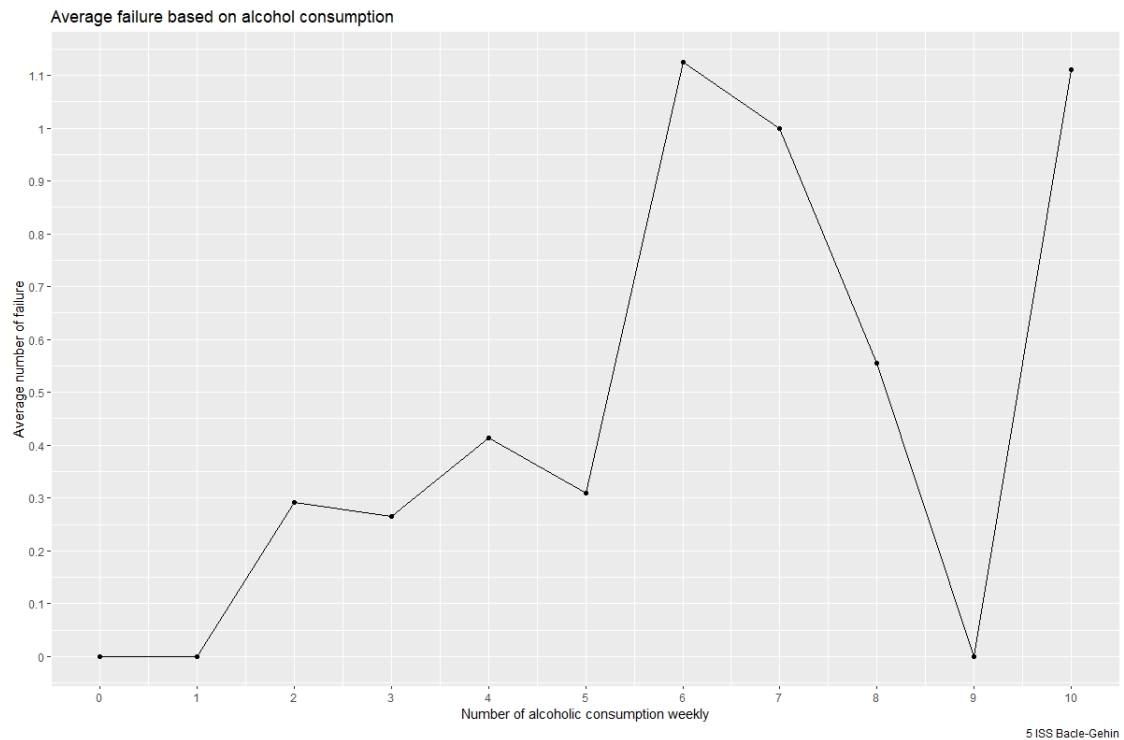


Figure 2: Average number of failure per alcohol consumption

As expected, the less a student drinks in the week the less he seems to fail. We have noticed that there is an exception for the students that drink nine times in a week, where none of them failed a grade but we have only a sample of three students for that value which is not representative. We also observe a sharp evolution between five and six. Then it stays high, except of course for nine consumptions per week. We think that this evolution is the difference between a week-end only consumption and a more regular weekly consumption. A weekly consumption might have a higher impact on the result of the student and their grades.

4 Does alcohol reduce student concentration?

We wanted to see if alcohol consumption was a factor of loss of concentration. We created a pie chart of the distribution of the absence per category. A category is the weekly consumption of a student. We took into account that there is not the same number of students in each category and calculate the average time of absence for one student in each category.

Absence distribution per category

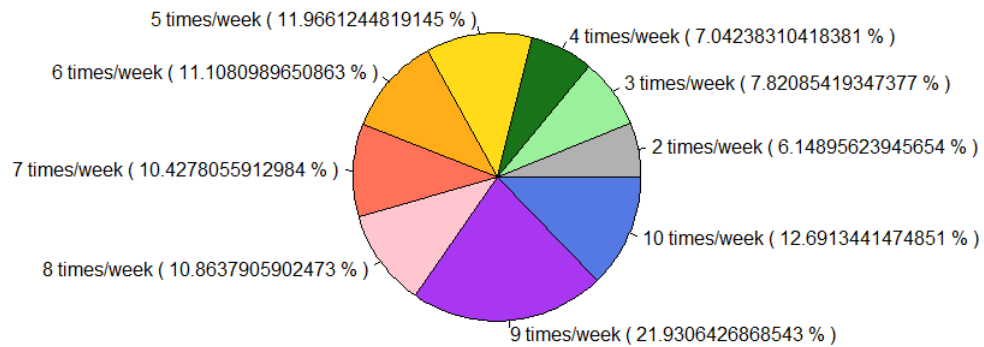


Figure 3: distribution of absence per alcohol consumption

This chart must be interpreted in the following way : 6.15% of the absences in these schools are due to students that drink 2 times per week whereas nearly 12.7% are due to students drinking 10 times per week.

As we can see, the more a student drinks the more he is prone to awareness. What is really interesting here is that, like on the line chart which represents the number of failures, we have a clear separation around the same level between four and five drinks weekly. This separation encourages our theory between week-end only and weekly alcohol consumption. A daily drink might have more impact than a few drinks on the week-end.

5 Alcohol consumption causes

With the following radar chart, we tried to understand what can be the causes of an important alcoholic consumption. We studied factors for a given number of consumption and obtained this chart :

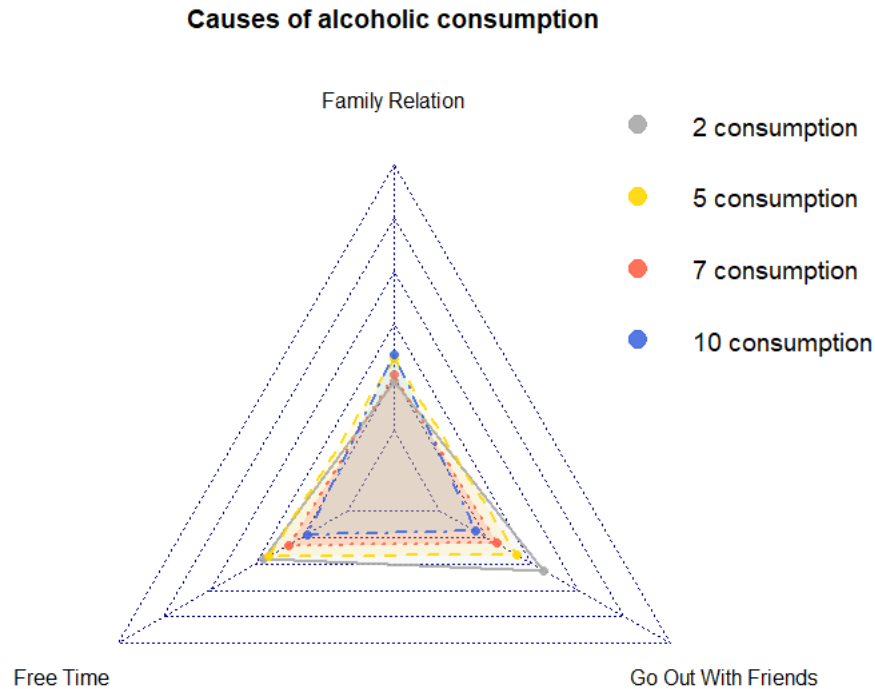


Figure 4: Factors of alcohol consumption

Unlike preconceived ideas, the people that drink the more are not the ones that go out the most. We think this behaviour may be due to the fact that it is cheaper to drink when we are home than out: we might drink more at home than out in a bar for example. In addition, it seems that the less free time they have (or seem to have) the more they drink. It might mean that students drink to reduce their stress or pressure due to the overload of work.

6 Alcohol consumption impact on grades

Finally, we wanted to study the impact on the final grade. The following swarm chart shows the distribution of the marks of each student based on their weekly consumption. It shows if a student is above or under the overall average mark.

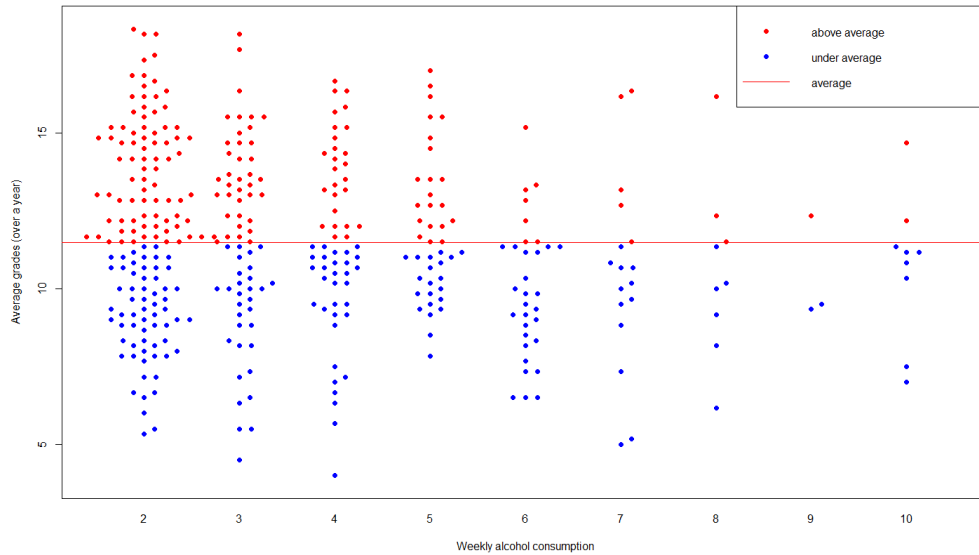


Figure 5: Average grades distribution per alcohol consumption

We noted two important things on that chart. First, once four drinks per week, which is once again the same separation as before, the majority of students are below the average mark. Second, the highest mark obtained is decreasing with the number of weekly consumption. These two observations show that the consumption of alcohol has an impact on the final mark. The more you drink the less likely you are to be successful in your grade.

7 Conclusion

To conclude, alcohol consumption seems to have a negative impact on students. It encourages absence, induces failures and reduces their chances in the final exam. However, the causes of an important consumption are not the one that we might think of. Maybe pressure and overload of work are more likely to cause an important alcohol consumption than free time and going out.

8 Dataset

<https://www.kaggle.com/uciml/student-alcohol-consumption>