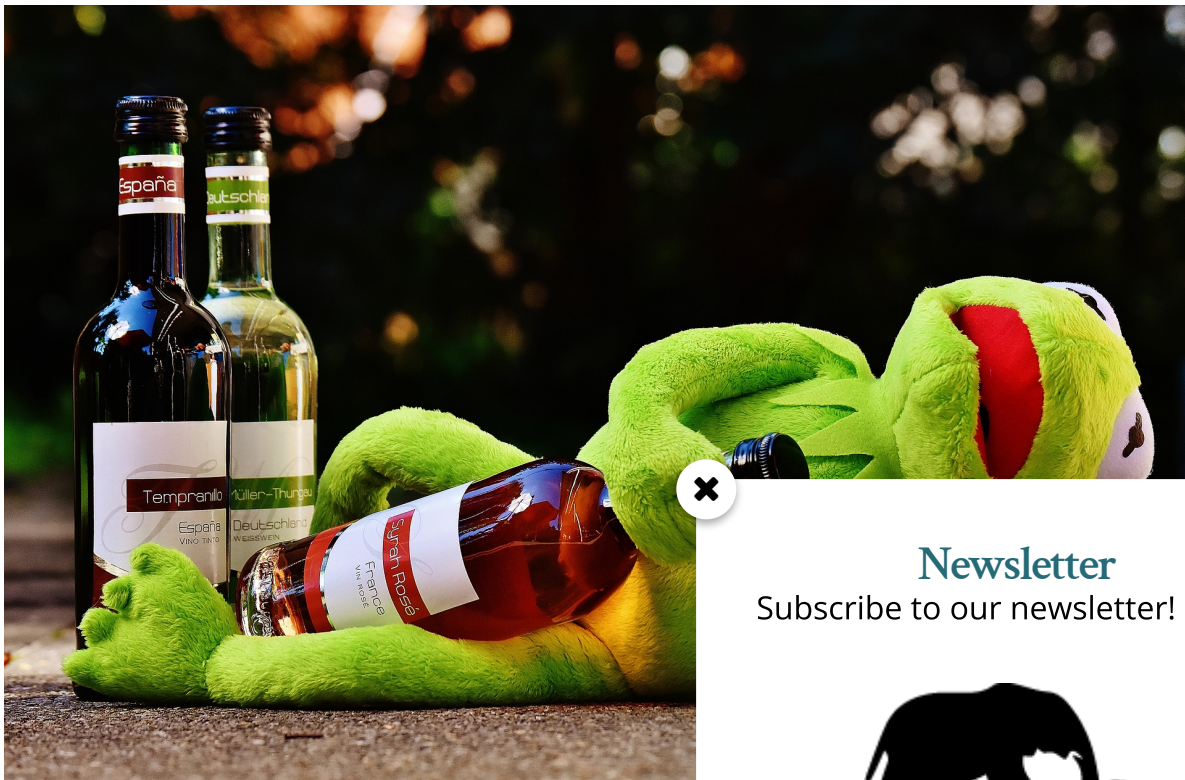


New experiment on anchoring and alcohol consumption

by iNudgeyou | Dec 11, 2017



Young people's excessive consumption of alcohol has been debated in many societies. The Danish Health authorities recommend that women drink less than 7 units a week and men less than 14 units a week. But do young people even know what a unit is? This is the question asked by the anchoring effect when it comes to alcohol consumption. A study involving 173 economics students at the University of Copenhagen was conducted to investigate this.

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Anchoring is a concept within behavioural science, describing the tendency to anchor a given piece of information, right before making a decision. Once an anchor has been introduced, subsequent tasks can be influenced by this anchor. Anchors usually consist of a numerical value and can lead to less optimal decisions or judgements.

Kahneman and Tversky's wheel of fortune experiment in 1974

The psychologists Daniel Kahneman and Amos Tversky identified the anchoring effect in a well-known study from 1974 [1]. In the study, they asked a group of students to spin a wheel of fortune (with numbers ranging from 0 to 100) and to write down the number it landed on. The experimenters had rigged the wheel to always land on either 65 or 10. Afterwards the students were asked to answer whether they thought that the percentage of African member states in the United Nations was higher or lower than the number that they just had written down. Finally, they were asked to estimate what they thought was the actual percentage of African countries in the UN. The experiment showed that the students who had been presented to the high anchor (65) estimated the percentage to be higher than the students who had been presented to the low anchor (10).

Figure 1: The result of the "Wheel of fortune" experiment



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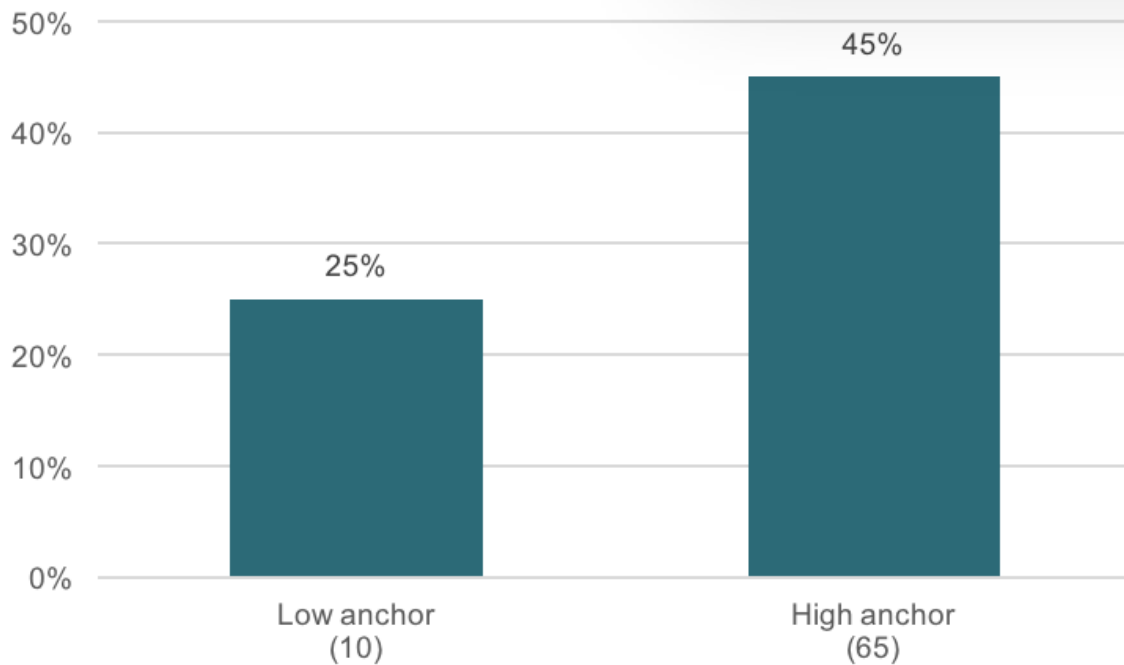
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Spinning the wheel of fortune and estimating the percentage of African member states in the UN are two separate tasks, but the first task seems to affect the following one. This is precisely what Kahneman and Tversky defined as the anchoring effect.

The anchoring effect and uncertainty

It is important to notice that the anchoring effect was not the only one. The experimenters in the study from 1974 had also asked the participants to estimate the percentage of African member states in the UN. When the anchor was 10, the average answer was 25%. When the anchor was 65, the average answer was 45%. Hence, there should be a certain degree of uncertainty with the question to be considered, for people to be influenced by an anchor. The higher level of uncertainty, the higher is the influence of the anchor.

Experiment: Anchoring effect

Excessive alcohol consumption is a widespread problem in many countries.

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- Women should not drink more than 7 units a week.
- Men should not drink more than 14 units a week.

These guidelines must necessarily be based on an underlying assumption that the population at least knows what a unit* is, regardless whether they choose to follow these recommendations or not. For this reason, we decided to investigate if university students know how many units there are in different types of alcohol beverages, and if they could be influenced by the anchoring effect.

The study

During the summer, many university students spend a large part of their holidays taking summer courses. We therefore got the opportunity to get access to 173 economics students enrolled in a summer course at the University of Copenhagen. The students were randomly given two different questionnaires at a lecture. The two questionnaires consisted of questions about the number of units in three different alcoholic beverages (beer, red wine and vodka). The questionnaires were identical beside one thing: one questionnaire had a low anchor and the other had a high anchor. The students were first presented to an anchor (either 7 or 14 units) and then they had to make a guess on the number of units in the three beverages. Finally, they had to indicate how certain they were that their guess was correct (on a scale from 0 to 100 %).

Figure 2: Illustration of the two



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Low anchor

Alcohol

Beer, 33 cl. (a standard beer can)

Do you think that there are more or less than 0.5 units in an average beer can (33 cl.)?

☐ Less than 0.5 units
☐ More than 0.5 units

How many units would you guess that a standard beer can (33 cl.) contains?

How confident are you that your guess is correct? (State a number between 0 % and 100 %)

_____ %

Red wine, 75 cl.

Do you think that there are more or less than 5 units in a standard bottle of wine of 75 cl.?

☐ Less than 5 units
☐ More than 5 units

How many units would you guess that a standard bottle of wine of 75 cl. contains?

How confident are you that your guess is correct? (State a number between 0 % and 100 %)

_____ %

Vodka, 70 cl.

Do you think that there are more or less than 15 units in a standard bottle of vodka of 70 cl.?

☐ Less than 15 units
☐ More than 15 units

How many units would you guess that a standard bottle of vodka of 70 cl. contains?

How confident are you that your guess is correct? (State a number between 0 % and 100 %)

_____ %

High anchor

Alcohol

Beer, 33 cl. (a standard beer can)

Do you think that there are more or less than 1.5 units in an average beer can (33 cl.)?

☐ Less than 1.5 units
☐ More than 1.5 units

How many units would you guess that a standard beer can (33 cl.) contains?

How confident are you that your guess is correct? (State a number between 0 % and 100 %)

_____ %

Red wine, 75 cl.

Do you think that there are more or less than 15 units in a standard bottle of wine of 75 cl.?

☐ Less than 15 units
☐ More than 15 units

How many units would you guess that a standard bottle of wine of 75 cl. contains?

How confident are you that your guess is correct? (State a number between 0 % and 100 %)

_____ %

Vodka, 70 cl.

Do you think that there are more or less than 25 units in a standard bottle of vodka of 70 cl.?

☐ Less than 25 units
☐ More than 25 units

How many units would you guess that a standard bottle of vodka of 70 cl. contains?

How confident are you that your guess is correct? (State a number between 0 % and 100 %)

_____ %

We chose three alcoholic beverages (a beer can, a bottle of red wine and a bottle of vodka) based on a hypothesis that there would be an increasing level of uncertainty with respect to the number of units in each beverage. Hence, among the three different beverages, the low level of uncertainty would be to guess the number of units in a beer can and units in a bottle of vodka.

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The result

Looking at the students' guesses on the number of units in each beverage, there is no significant difference when comparing the two groups (high or low anchor). However, when looking at the average guesses on the number of units in red wine and vodka, the average estimate for the number of units in a bottle of red wine for the group with the low anchor, while it is 8.2 for the group with the high anchor. The difference of 2.2 units is statistically significant. For the bottle of vodka (70 cl.), the average guess is 24.1 for the low anchor, whereas it is 29.1 for the group with the high anchor. The difference of 4.7 units is statistically significant.

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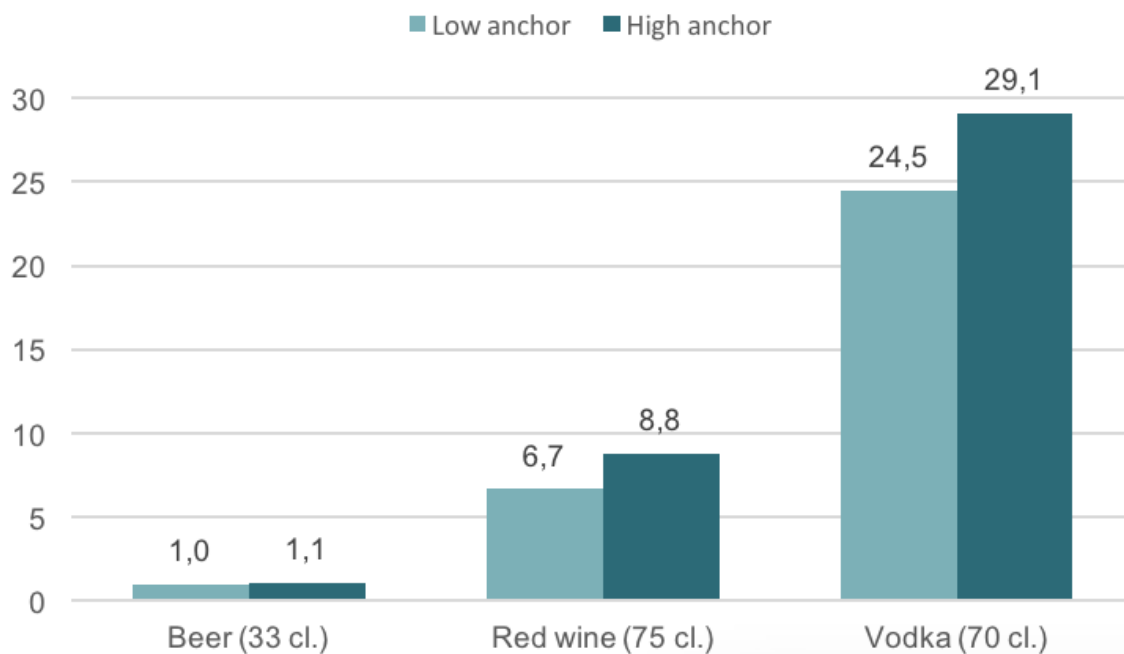


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Figure 3: Average guess of the number of units in different alcoholic beverages



When looking at how certain the students have been with their guesses (on a scale from 0 to 100 %), we see some interesting results. For beer, the average certainty was 74 %, for red wine 54 % and for vodka 41 %. This shows a clear relation between the degree of uncertainty and the degree of anchoring. The more uncertainty, the greater the effect of an anchor. The more uncertainty, the greater the effect of an anchor.

Figure 4: Average degree of certainty

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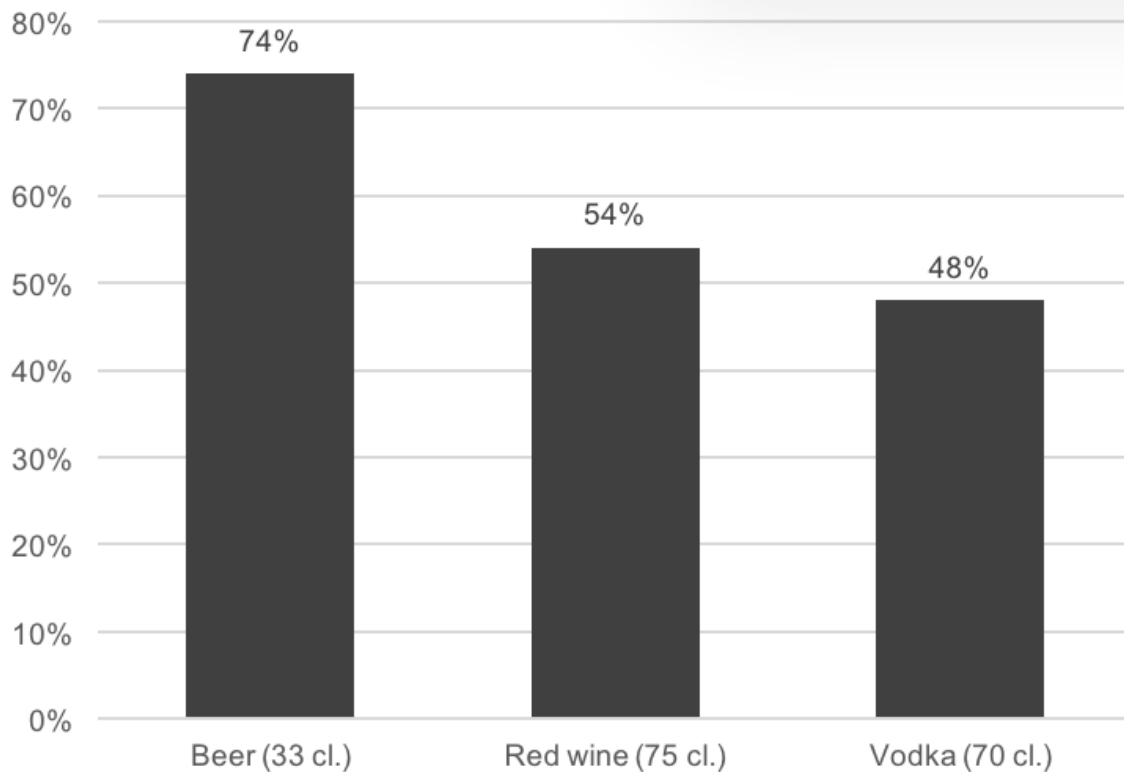
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The result of the experiment demonstrates that the students are not confident about what a unit is: the anchoring effect applies and the students state that they are relatively confident about their own consumption.

Experiment: Common misconceptions about alcohol consumption

A widespread explanation for young people's harmful drinking behavior is that they have misconceptions about other people's alcohol consumption. Research has shown that young people think that their consumption is lower than theirs. This is problematic and could lead to increased alcohol consumption, since the majority believes that they are drinking less than what themselves are doing at the moment [2]. In a survey, 100 economic students also had these misconceptions. They were asked to indicate how many units they are relatively confident about their own consumption.

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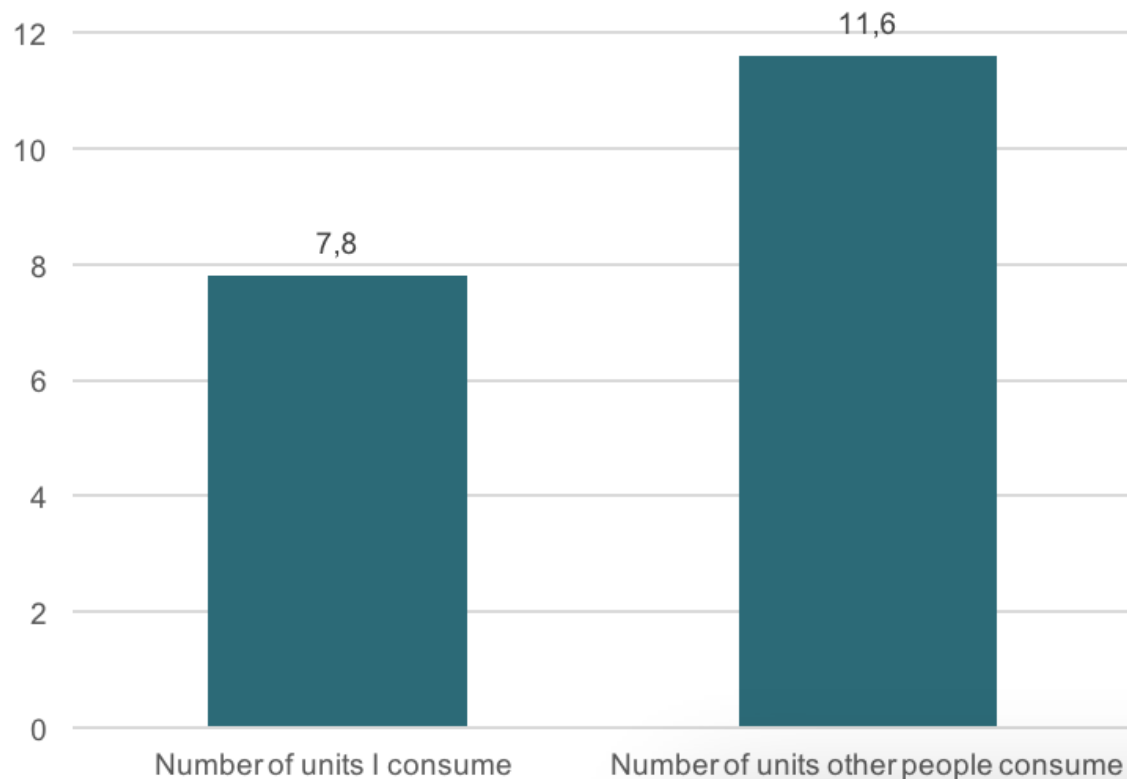


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Figure 5: Average number of units per week



Anchoring, misconceptions and alcohol consumption – so what?

The experiment shows that the students are using the anchoring effect. Furthermore, we see a clear difference in alcohol consumption, where students think that other people consume significantly more than they do themselves. A comparison with the Danish Health Authority's recommendation of 10 units you should drink per week, is the best way to reduce alcohol consumption. It seems that other methods are not effective in changing young people's alcohol habits. A better understanding of the anchoring effect could be used to help young people to drink less.

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We are currently working on how to limit young people's alcohol consumption with help from nudging – without ruin the good party mood. If you want to read more about alcohol consumption among young people, sign up for our newsletter. We will in the nearest future publish blogposts with the results from field experiments further investigating this topic.

*One unit is in Denmark defined as the amount of alcohol in a common Danish beer, namely 12 grams of pure alcohol.

References

[1] Tversky, A., & Kahneman, D. (1975). Judgment under uncertainty: Heuristics and biases. In *Utility, probability, and human decision making* (pp. 141-162). Springer Netherlands.

[2] Synnott, K. (2016). College Students and Alcohol: Consumption, Perceptions, and Administrators' Prevention.



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