A critique of the paper “Pathological gambling severity is associated with impulsivity in a delay discounting procedure” by S.M. Alessi & N.M. Petry.

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Paper found from Mike Cox linked bibliography. Reference:

Previous research and clinical expertise suggests those with pathological gambling problems are more impulsive, and impulsivity is an underlying cause.\textsuperscript{1,2} Research on the relationship between pathological gambling and impulsivity had measured impulsivity using personality assessments, however measuring impulsivity with regards to monetary decisions may be of more relevance to pathological gamblers. Alessi and Petry\textsuperscript{3} aimed to find the extent to which impulsive behaviour varied with pathological gambling severity, measuring impulsivity using a previously designed discounting of delayed monetary rewards task.\textsuperscript{4} If a participant chose the smaller immediate reward over a larger later one, it was classed as an impulsive choice, whereas the opposite showed self-control\textsuperscript{5,6}. They measured gambling severity using the South Oaks Gambling Screen (SOGS)\textsuperscript{7}. Participants also completed the Eysenck impulsivity scale\textsuperscript{8} and the Addiction Severity Index (ASI)\textsuperscript{9}.

Alessi and Petry hypothesized a positive association between participant’s delay discounting rates and their Eysenck impulsivity scale scores. They also stated that they expected an association between discounting rates and gambling problem severity.

62 pathological gamblers who were enrolled in treatment therapy for their gambling problem were used. They completed assessments about their demographic characteristics, gambling history and substance abuse history, the SOGS to determine how bad their gambling problem was, Timeline Follow-Back procedures\textsuperscript{10} to find out the amount participants had gambled (in number of days and dollars) in the 30 days before they started treatment, the ASI, the Eysenck Impulsivity Questionnaire and the delay discounting task.

In the delay discounting tasks participants were asked which hypothetical reward they would take, an immediate smaller amount ($1-$999) or $1000 after a delay of either six hours, one day, one week, two months, six months, one year, five years or 25 years, with the reward amount and delay presented in ascending and descending order. The amount
participants picked the delayed reward over the immediate reward was the indifference point, where the smaller immediate and larger delayed rewards are seen as basically equal.

A hyperbolic equation\(^1\) was used to calculate the rate at which the delayed reward was discounted \((k)\), and liner regression to see which variables predicted \(k\). Age, gender, smoking status, years of education and substance abuse all failed to predict \(k\) but SOGS and Eysenck scores both did, with SOGS’s predictive value being 1.4 times better than Eysnecks scores, meaning that gambling problem severity was the best predictor of impulsivity.

Critique

The study is relevant. An estimated 1.6% of adults in the US and Canada report gambling problems\(^2\), which can have a huge effect on people’s lives. Understanding why some people seem more likely to develop this problem is important as perhaps then we can begin to counter and help the problem. There is a large amount of literature which shows that impulsivity is raised in gamblers\(^2, 13, 14\), which Alessi and Petry state in their introduction so their rationale is well explained and makes sense. The study is relevant to the psychology of financial decision making because it is investigating the representativeness heuristic\(^1\) that gamblers are impulsive, by seeing what the probability of having a gambling problem and being impulsive is. This could be a helpful heuristic because there are cognitive and behavioural treatments for impulsivity available\(^6\) and perhaps these could be applied to pathological gamblers to help them overcome their problem. It is also linked to loss aversion. The study is seeing if gamblers impulsivity causes them to forgo most people’s sensitivity to loss to collect a lower reward immediately\(^7\).

Some of the main problems with the study stem from the participants. All the participants were pathological gamblers in treatment for their problem. There was no control group at all. It has been shown that impulsivity is higher in problem gamblers\(^8\) so surely all the participants here would be more likely to take the immediate reward. This is sample size
neglect, as the experimenters infer from their results that impulsivity is associated with gamblers but if they had increased their sample size to include non-pathological gamblers, perhaps they would’ve found different. A control group would have been interesting to see how people with no problem faired, and to compare with the gamblers. Perhaps everyone shows a preference for the immediate reward, although studies into preferences in prospect theory show that participants prefer to choose the option which guarantees them the most money\textsuperscript{19} which in this case would be the delayed reward.

The sample was taken from people who were being treated for gambling problems, so perhaps they had not gambled in a while, as it is expected you halt an addictive behaviour when going through treatment. There is evidence to suggest that gamblers may experience symptoms similar to withdrawal when stopping\textsuperscript{20}, and people who are withdrawing have been shown to make more impulsive decisions and show less discrimination between magnitudes of prospective gains and losses when making decisions\textsuperscript{21}, meaning the participants may have been more inclined to act impulsive due to them going through withdrawal. The use of a control group could have negated this.

The majority of participants were male, meaning it wasn’t a fair representative; however it has been shown that there are no sex differences on delay discounting tasks\textsuperscript{22}, meaning we could perhaps expect similar results with more females being used. An explanation as to why the sample was predominantly male could be because males have been show to exhibit more gambling behaviour then women\textsuperscript{23} and pathological gambling affects more men than women\textsuperscript{24}. The sample was also predominantly white, which could be perhaps explained as it has been shown that Western cultural groups are more likely to start gambling and to then develop pathological gambling problems than others\textsuperscript{25}. It is a problem though because research suggests members of individualistic societies, which the majority of this sample was, may show more impulsive behaviours than members of collectivistic societies\textsuperscript{26}. 
Two limitations were discussed in the paper. The first was all rewards were hypothetical and the subjects knew this. If there was a real reward involved perhaps participants would’ve acted differently. The study could be repeated with real rewards, perhaps with immediate rewards of various intervals from $0.01 to $4.99 and a delayed reward of five dollars, and see if similar findings were found. Although the amounts would be small it has been shown that people do display loss aversion for small amounts of money\textsuperscript{27}, so it should work to an extent. The other limitation was that there was only one reward magnitude examined. This problem could be easily resolved by repeating the study but having the participants tested with other reward magnitudes as well as $1000.

The use of the SOGS was good. Studies have shown the SOGS is very good in classification accuracy of people in treatment for gambling problems, but poor in accuracy in the general population\textsuperscript{28}, but as this study only used subjects with gambling problems, its use here was suitable. Using Eysenck’s scale to measure impulsivity was also good. A possible alternative scale which could’ve been implemented was the Barratt Impulsiveness Scale BIS-10\textsuperscript{29}, however when the two were compared, there was a high correlation when measuring impulsivity with both, but Eysenck’s was more reliable,\textsuperscript{30} meaning it was the best choice.

Overall the study had strengths, such as measuring impulsivity with decisions based on monetary rewards, something not done a lot previously when looking at the link between impulsivity and pathological gamblers, but it also had problems. The findings weren’t consistent with other research, which found age, gender, cigarette smoking history, substance abuse history and education to predict delay discounting rates,\textsuperscript{31, 32, 33, 34} something not found here. Due to this and other previously stated issues, I suggest redoing the study with alterations, like the addition of a control group and use of different monetary reward magnitudes, and reassessing the findings.
References


