



The relationship between gambling flow and sympathetic nervous system activity

What this research is about

Flow refers to the experience of being fully immersed in and extremely focused on an activity. Gambling, particularly on electronic gambling machines (EGMs), is one activity that can induce flow in people. People who struggle with disordered gambling are more susceptible to experiencing flow while gambling. Getting completely absorbed in gambling may be a coping strategy for negative feelings like stress.

In the past, researchers have relied on self-report measures to assess the experience of flow. Therefore, it would be useful to have a tool that is more objective. Psychophysiological methods, such as those that measure heart rate, could be used to measure flow.

The aim of this study was to assess how the sympathetic nervous system responds to gambling flow during EGM gambling. The sympathetic nervous system is responsible for preparing the body for stressful or dangerous situations. One way to assess the sympathetic nervous system is to measure cardiac pre-ejection period (PEP). PEP uses electrical signals from the heart as an indicator of sympathetic nervous system activity. It is an inverse indicator, meaning that as sympathetic nervous system activity increases, PEP decreases (and vice versa).

What the researchers did

The researchers recruited undergraduate students over the age of 19 in a series of three separate studies. Each study had its own aim. Two of the studies had been previously discussed in earlier published research. However, PEP measures were taken during each experiment, allowing the researchers to aggregate the data for this paper.

What you need to know

Gambling flow is a state of total immersion in the activity of gambling. Many people experience gambling flow while playing on electronic gambling machines (EGMs). Gambling flow is often measured with self-report measures such as questionnaires. It would be valuable to assess flow in other ways. The researchers of this study wanted to know if there was a relationship between flow and sympathetic nervous system activity. They used data from three experiments in which undergraduate men gambled on an EGM for 15 minutes. The researchers found that sympathetic nervous system activity changed in the first 5 minutes of gambling, and this corresponded with self-reported experience of flow. However, the direction of this change was different across the three studies.

Participants completed the Problem Gambling Severity Index (PGSI), which assess problems related to disordered gambling. Only participants who were not categorized as problem gambling could participate in the studies (scored 7 or less on the PGSI). After completing the PGSI, participants were equipped with PEP equipment and asked to gamble on an EGM for at least 15 minutes. A measure of flow, a subscale of the Gambling Expectancy Questionnaire (GEQ), was filled out after gambling. In Study 2, participants completed the flow subscale after every 5 minutes of gambling.

What the researchers found

A total of 218 participants (all men) provided PEP data. The researchers split the PEP data into blocks of

5 minutes. This resulted in three blocks of PEP data: from 0 to 5 minutes, from 5 to 10 minutes, and from 10 to 15 minutes. A different score was calculated to reflect the change in PEP from baseline to each block of time. The researchers analyzed three models to see which one fit the data best.

The first model examined whether block number (i.e., the three distinct points in time during the gambling session) predicted change in PEP. The researchers found that PEP at any of the points in time were not different from baseline when flow was not considered.

The second model analyzed whether change in PEP was predicted by block number, and the interaction between block and the GEQ measure of flow. The researchers found that the experience of flow predicted change in PEP for Block 1 (0 to 5 minutes) but not for the other blocks.

The third model assessed whether PEP was predicted by block number and the interaction between block, GEQ measure of flow, and which study the data were from. The researchers found that in all three studies, PEP interacted with flow during Block 1 only. However, the direction of the relationship was different in Study 3 compared to Studies 1 and 2. In Studies 1 and 2, higher scores on the flow subscale of the GEQ corresponded to a decrease in PEP during Block 1. A decrease in PEP indicated an increase in sympathetic nervous system activity. In Study 3, higher scores on the flow subscale corresponded to an increase in PEP during Block 1. The researchers speculated that one reason was due to differences in the study protocols. During Study 3, participants were gambling near other participants. In the other studies, they were gambling by themselves.

How you can use this research

This research could be useful for gambling researchers, particularly those interested in gambling flow. The researchers found that flow was associated with change in PEP for the first 5 minutes of a gambling session. This suggests that the first few minutes of a gambling session may be the most important in determining if flow is experienced in that

session. There are many avenues for future research in this area. This study could be replicated to further understand the relationship between flow and the sympathetic nervous system.

About the researchers

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