

Examining the Reliability and Utility of MouseView.js as a Method to Measure Attentional Bias for Cannabis Use

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ABSTRACT

Objective: Current methods of assessing cannabis-related attentional bias such as modified Stroop tasks are characterized by several limitations, including low reliability. The goal of the present study was to explore the reliability and utility of a novel methodological tool that is a proxy for eye-tracking—MouseView.js—to examine cannabis-related attentional bias. **Method:** Canadian postsecondary students ($N = 580$) freely viewed 30 image pairs of neutral and cannabis stimuli using MouseView.js. Participants also completed self-report measures of cannabis use, including problematic cannabis use. Reliability coefficients (Cronbach's alpha and split-half) were calculated to estimate the internal consistency of cannabis images, neutral images, and dwell difference scores. A hierarchical testing strategy was used to examine whether image (neutral vs. cannabis) and cannabis use status (non-use, recreational use, problematic use), as well as the interaction between image and cannabis use status, explain variation in dwell times. **Results:** A total of 368 participants (64.4%) did not use cannabis, 138 (23.8%) used cannabis recreationally, and 74 (12.8%) used cannabis at problematic levels. The reliability estimates for cannabis images, neutral images, and attentional bias scores ranged from acceptable to excellent. There was a main effect of image, such that all participants spent more time viewing cannabis relative to neutral images, indicative of an attentional bias. The main effects for cannabis use status and interactions between cannabis use status and image type were not statistically significant. **Conclusions:** Taken together, the present findings suggest MouseView.js may be a reliable method to assess cannabis-related attentional biases.

Key words: = attentional bias; problematic cannabis use; cannabis; MouseView.js

Cannabis remains one of the most widely used illicit substances worldwide and has recently been legalized in certain jurisdictions including Canada (Cox, 2018). Although many individuals use cannabis for purely recreational or medicinal purposes, some individuals may develop problematic cannabis use. Problematic cannabis use can lead to a wide array of negative

consequences, such as impaired social and occupational functioning, financial difficulties, and increased risk of physical and other mental health problems (Gutkind et al., 2021). Consequently, a substantial body of empirical research has been dedicated to elucidating potential risk factors for problematic cannabis use.

Of particular relevance to the present study, a risk factor for problematic cannabis use is cannabis-related attentional bias (Field, 2005; O'Neill et al., 2020). Attentional bias refers to a phenomenon whereby stimuli of greater saliency in the environment are more likely to capture attention than less salient stimuli (Anderson et al., 2016). Considering the limited attentional resources available, attentional biases can represent a type of cognitive disadvantage, especially when potentially harmful stimuli (e.g., addiction-related cues) are attended to more readily. In the context of cannabis use, an attentional bias would occur when an individual disproportionately allocates their attention towards cannabis-related stimuli over non-cannabis related stimuli (Field & Cox, 2008). Previous studies suggest that individuals who use cannabis develop a cannabis-related attentional bias and, furthermore, that the magnitude of attentional bias is positively correlated with the frequency of cannabis consumption and subjective cannabis craving (O'Neill et al., 2020; Field et al., 2006). Providing support for this supposition, a recent meta-analysis of 13 studies ($N = 1271$; O'Neill et al., 2020) found that people who used cannabis displayed a greater attentional bias towards cannabis-related stimuli, compared to those who did not use cannabis, with medium effect sizes.

The meta-analysis conducted by O'Neill et al. (2020) also highlighted that cannabis-related attentional bias has mainly been studied using face/dot-probe tasks and modified Stroop task, which have been criticized on methodological grounds. Specifically, several studies have revealed poor reliability estimates of indirect attentional bias measures such as dot-probe tasks (Dear et al., 2011; Price et al., 2015; Schmukle, 2005; Staugaard, 2009). Consequently, direct and continuous measures of attentional bias using eye-tracking paradigms have become the gold-standard (Yoon et al., 2019). However, only two studies to date have examined cannabis-related attentional bias using eye-tracking paradigms. When attentional bias was assessed using total dwell time to cannabis images, both studies revealed that people who use cannabis display a greater attentional bias to cannabis-related stimuli relative to neutral, non-cannabis related stimuli (compared to people who do not use cannabis; Field et al., 2006), as well as the

difference in dwell time between cannabis and neutral images (compared to individuals who use cocaine; Alcorn et al., 2019).

Although there are advantages to assessing attentional bias through eye-tracking, there are also several disadvantages. Eye-tracking operates well in a tightly controlled lab environment but is time-consuming and costly for both researchers and participants (Valliappan et al., 2020). Webcam-based methodology has been utilized in an attempt to mitigate the limitations of eye-tracking by increasing accessibility and reducing costs. However, there are also significant barriers and issues associated with webcam-based technology. Webcam-based eye-tracking technology has been criticized for its lack of accuracy by producing only rough gaze estimates, which are insufficient for spatial attention research (Simmelmann & Weigelt, 2018). Further, over 60% of participants who attempt to participate in webcam-based eye-tracking studies are excluded due to calibration difficulties, and thus studies using this methodology suffer from high attrition rates (Anwyl-Irvine et al., 2022). Lastly, webcam-based methodology has raised important privacy issues considering the data extracted may be identifiable (Simmelmann & Weigelt, 2018).

MouseView.js is a novel methodological tool to measure attentional biases that was developed to address the aforementioned limitations of both in-person and online eye-tracking studies by simulating gaze tracking in a web-based format. Anwyl-Irvine and colleagues (2022) developed MouseView.js as an alternative to eye-tracking because of its ability to mimic the visual system's peripheral blur as participants move a high-fidelity aperture the size of the fovea with their mouse or cursor to explore an otherwise blurred image. The result is akin to providing the participant with a flashlight that allows them to see only portions of a very dark room that the flashlight illuminates. Given that the measure is web-based, MouseView.js may represent an efficient and cost-effective tool to conduct attentional bias studies.

Demonstrating the potential utility of MouseView.js, Anwyl-Irvine et al. (2022) conducted two studies directly comparing MouseView.js to gold-standard eye-tracking methodology. The first between-participants study employed an affective preferential looking

task and suggested that MouseView.js resembled eye-tracking paradigms based on participant consistency and good reliability between both gaze and MouseView.js experiments (Anwyl-Irvine et al., 2022). A subsequent within-participants study suggested that MouseView.js may be as reliable as gaze tracking methods because the same dwell time patterns were produced when using either MouseView.js or eye-tracking, and the dwell times from MouseView.js were highly correlated with the dwell times from eye-tracking (Anwyl-Irvine et al., 2022). In a separate series of studies, Milani et al. (2025) employed a discovery and replication design to examine whether Mouseview.js was capable of identifying attentional biases towards sexual stimuli. Their findings were promising and reflected those observed in traditional eye-tracking studies, wherein MouseView.js successfully demonstrated its ability to detect attentional biases elicited by sexual relative to non-sexual cues (Milani et al., 2025). Taken together, the four studies provide preliminary support for using MouseView.js as an online alternative to examine attentional bias.

While MouseView.js appears to address numerous challenges and limitations associated with eye-tracking, it is currently unknown whether MouseView.js may be a reliable and valid method of measuring attentional biases in the context of substance use, including cannabis use. If MouseView.js is found to be a reliable method of assessing attentional bias in cannabis use, it may provide a feasible and convenient tool to extend our knowledge of attentional bias in substance use disorders. Consequently, the aim of the present study was to examine the preliminary reliability and utility of MouseView.js as a tool to assess cannabis-related attentional bias.

The present study is the first to our knowledge to examine the reliability and validity of MouseView.js to assess attentional bias in the context of cannabis use. Herein, we sought to test the reliability of cannabis images, neutral images, and cannabis-related attentional bias among individuals who have never used cannabis, individuals who use cannabis recreationally, and individuals with problematic cannabis use. Furthermore, we sought to examine whether these three groups differ in cannabis-related attentional bias.

Based on existing empirical literature in the field of addiction broadly, it was hypothesized

that: (H1) Cronbach's alpha and split-half reliability coefficients for the cannabis and neutral images will range from acceptable to excellent; (H2) participants with problematic cannabis use will display a greater attentional bias for cannabis-related stimuli than participants who use cannabis recreationally or do not use cannabis; and (H3) participants who use cannabis recreationally will display a greater attentional bias for cannabis-related stimuli than participants who do not use cannabis.

METHODS

Participants and Procedure

Participants were 636 undergraduate students recruited from the SONA Undergraduate Psychology Research Pool at two large universities located in major metropolitan cities in Canada. Participants first completed the cannabis attentional bias task using MouseView.js. Thereafter, participants were redirected to a Qualtrics survey to complete a demographics questionnaire and the self-report measures described below. Participants received 0.5 SONA credits, equivalent to 0.5% of their final grade in an introductory psychology course, for completing the study. Following exclusions due to incomplete or invalid data ($n = 56$), the total final sample size was 580. In total, the study took approximately 25-30 minutes to complete. Ethics approval was obtained from the Research Ethics Boards at the authors' respective institutions.

Measures

MouseView.js Cannabis-Related Attentional Bias Task. The MouseView.js task featured a cannabis cue stimulus set developed and validated by Macatee et al. (2021), consisting of 30 visually matched cannabis and neutral image pairs. The image pairs were presented in a randomized order and the placement of the cannabis and neutral images (i.e., left and right) were also randomized. Each image pair was briefly flashed on screen, side by side, for 500ms before being completely blurred out. Participants then had 12,000ms to freely explore the images that captured their attention on screen by moving their cursor to unblur the part of the image they hovered over. The image set was matched on colour (e.g., saturation, hue),

composition (i.e., how the elements are arranged within an image), as well as other important confounding characteristics (e.g., human hands, faces). The cannabis stimuli depicted four different cannabis-related products (e.g., joints, vaporizers) and their respective consumption methods (e.g., smoking, using vape pens), whereas the neutral stimuli featured images of toothbrushes, because tooth brushing was assumed to be a familiar activity for most people. Furthermore, cannabis use and tooth brushing both involve coordinated motor and oral activity, which allowed image pairs

to be heterogeneous across salient characteristics (Macatee et al., 2021). An example of a paired cannabis and neutral image set from the task is presented in Figure 1. The MouseView.js task records participant mouse movements per stimuli which is then averaged across all image pairs to measure total dwell times. Total cannabis and neutral dwell times refer to how long a participant spent looking at the respective stimuli separately, while total dwell difference refers to the difference between time spent looking at cannabis vs. neutral stimuli.

Figure 1. *Example Paired Cannabis and Neutral Image Set From Mouseview.js Attentional Bias Task*



Cannabis Use Disorder Identification Test – Revised. The Cannabis Use Disorder Identification Test – Revised (CUDIT-R; Adamson et al., 2010) is a brief 8-item self-report measure that assesses the severity of problematic cannabis use in the past six months. The scale addresses important features of consumption patterns, cannabis problems, dependence symptoms, and psychological factors (Adamson et al., 2010). A score of 12 or higher indicates problematic cannabis use. In the present study, the CUDIT-R was used to classify participants based on their patterns of cannabis use for the purpose of examining group differences in cannabis-related attentional bias. The internal consistency of the CUDIT-R was $\alpha = 0.81$ in the present sample.

Data Analysis

To examine the internal consistency of the cannabis and neutral images in the MouseView.js

task (H1), two measures of reliability were calculated: Cronbach's alpha and the split-half (first half and second half) reliability coefficient. Internal consistency was estimated for the total dwell time for cannabis and neutral images separately, as well as the total dwell time difference between cannabis and neutral images.

To examine whether image (neutral vs. cannabis) and cannabis use (non-use, recreational use, problematic use) along with the interaction between these variables explain variations in dwell times (H2 and H3), a hierarchical testing strategy was used. Model 1 was an intercept-only model used to calculate the intraclass correlation coefficient (ICC). Model 2 included the main effects of image at the within-person level and cannabis use at the between-person level. The main effect of cannabis use was included using two dummy coded variables: non-use vs. recreational use and non-use vs. problematic use. Model 3 included the main effects of image and

cannabis status as well as their two-way cross-level interaction. The two-way interaction was included by having two dummy coded variables for cannabis status simultaneously predict variation in the random slope indexing the difference in dwell times between neutral and cannabis images. The analyses were conducted using Mplus version 8.2 (Muthén & Muthén, 2018). Maximum Likelihood estimation was used with robust *SEs*. A square root transformation was applied to dwell times to reduce non-normality.

RESULTS

Demographic Characteristics

The mean age of the sample was 20.58 (*SD* = 4.01). Most participants (*n* = 469; 80.9%) self-identified as women. Regarding ethnicity, 417 (74.9%) participants self-identified as Black, Indigenous, and/or a person of colour (BIPOC) and 140 (24.1%) self-identified as White. Full demographic characteristics of the sample and by cannabis use group can be found in Table 1.

Table 1. Demographic Characteristics of the Full Sample and by Cannabis Use

	Full sample (<i>n</i> = 580) <i>M</i> (<i>SD</i>)	Non-use (<i>n</i> = 368) <i>M</i> (<i>SD</i>)	Recreational use (<i>n</i> = 138) <i>M</i> (<i>SD</i>)	Problematic use (<i>n</i> = 74) <i>M</i> (<i>SD</i>)
Age	20.58 (4.01)	20.68 (4.37)	20.34 (3.55)	20.53 (2.88)
Gender	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Woman	469 (80.9)	300 (81.5)	112 (81.2)	57 (77.0)
Man	92 (15.9)	59 (16.0)	20 (14.5)	13 (17.6)
Non-binary	16 (2.8)	7 (1.9)	5 (3.6)	4 (5.4)
Ethnicity				
BIPOC	417 (71.9)	294 (79.9)	91 (65.9)	32 (43.2)
White	140 (24.1)	60 (16.3)	40 (29.0)	40 (54.1)

Note. BIPOC = Black, Indigenous, and/or person of colour. Percentages in each category do not sum to 100 due to missing demographic data among some participants.

Cannabis Use

Three hundred and sixty-eight participants (63.4%) reported having never used cannabis in their lifetime or reported having used cannabis previously, but not within the past year (i.e., non-use group). A total of 138 participants (23.8%) consumed cannabis in the past year but did not meet the hazardous cannabis use cut-off score (of 12 or higher) on the CUDIT-R (i.e., recreational use) The remaining seventy-four participants (12.8%) met the hazardous cannabis use cut-off score on the CUDIT-R (i.e., problematic use).

Reliability

Internal consistency coefficients for total cannabis dwell time (*a* = .91 to .94 and S-h = .91 to .95), and total neutral dwell time (*a* = .91 to .92 and S-h = .92 to .93) were excellent. The total dwell difference (*a* = .78 to .87 and S-h = .79 to .89)

internal consistency coefficients ranged from acceptable to good. Cronbach's alpha and split-half reliability coefficients for the total sample and by cannabis use group are presented in Table 2.

Predicting Differences in Dwell Time

The ICC in Model 1 indicated that approximately 25% of the variance in dwell times was due to between-person differences, *r* = .25. Model 2, which included the main effects, explained differences in the dwell times relative to Model 1, $\Delta\chi^2(5) = 1472.74$, *p* < .001. Unexpectedly, however, Model 3, which included the cross-level interaction effects, did not explain more variance in the dwell times relative to Model 2, $\Delta\chi^2(2) = 4.38$, *p* = .11. The results of Model 3 (see Table 3) demonstrate a main effect of image, such that participants spent approximately 5.05 milliseconds more viewing cannabis images than

neutral images, $B = 5.05 [1.75, 8.33]$, $z = 3.00$, $p = .003$. The main effects for cannabis use and

interactions between cannabis use and image were not statistically significant.

Table 2. *Internal Consistency Coefficients for Total Dwell Time on Cannabis, Neutral, and Dwell Difference in the Full Sample and by Cannabis Use*

	Full sample ($n = 580$)		Non-use ($n = 368$)		Recreational use ($n = 138$)		Problematic use ($n = 74$)	
Cannabis	<i>a</i>	S-h	<i>a</i>	S-h	<i>a</i>	S-h	<i>a</i>	S-h
	.92	.93	.91	.93	.94	.95	.91	.91
Neutral	<i>a</i>	S-h	<i>a</i>	S-h	<i>a</i>	S-h	<i>a</i>	S-h
	.91	.92	.91	.92	.92	.93	.91	.92
Difference	<i>a</i>	S-h	<i>a</i>	S-h	<i>a</i>	S-h	<i>a</i>	S-h
	.82	.86	.81	.85	.87	.89	.78	.79

Note. *a* = Cronbach’s alpha; S-h = split-half reliability coefficient.

Table 3. *Results from Model Three of the Multilevel Regression Analyses*

		Dwell time	Random Slope
		<i>B</i> (<i>SE</i>)	<i>B</i> (<i>SE</i>)
Within level			
	Residual variance	580.99(18.56)**	—
Between level			
	Intercept	58.35(1.49)**	
	Image (neutral vs. cannabis)	—	4.72(1.59)**
	Recreational use vs. non-use	.01(1.72)	—
	recreational use vs. problematic use	1.14(2.45)	—
	Image x recreational use vs. non-use	—	-2.95(1.81)
	Image x recreational use vs. problematic use	—	.343(2.31)

Note. Regression coefficients are unstandardized. * $p < .05$; ** $p < .01$.

DISCUSSION

The present study sought to examine the reliability of using MouseView.js as a method to measure cannabis-related attentional bias using a validated cannabis and matched neutral image set developed by Macatee et al. (2021). Results revealed that participants spent significantly more time viewing cannabis images relative to neutral images, regardless of whether participants did not use cannabis, recreationally used, or used cannabis problematically. In other words, contrary to our hypothesis, we did not observe a significant interaction between cannabis use (i.e., problematic cannabis use) and image type, suggesting that all participants in the study displayed an attentional bias for cannabis-related images. This finding is consistent with some previous studies using different measures of attentional bias (e.g., pictorial stimuli tasks, word stimuli tasks) that have found significant main

effects but no significant group differences between individuals who do and do not use cannabis in attentional bias toward cannabis-related stimuli (Asmaro et al., 2014; Field et al., 2004; Field et al., 2006).

Significant between-group differences in cannabis-related attentional bias depending on cannabis use severity were not detected by MouseView.js in the present study, indicating that we did not observe preliminary evidence for the construct validity of the measure. This appears at odds with some previous research indicating that the magnitude of attentional bias and frequency of cannabis consumption are positively correlated (O’Neill et al., 2020; Field et al., 2006). However, there are various potential explanations for these null findings. For one, we compared attentional bias between groups depending on their severity rather than frequency of cannabis use, which could produce different results. Attentional bias may be more strongly

associated with cannabis use severity than frequency, as it reflects clinically relevant addiction processes, including incentive sensitization, conditioned cue salience, and impaired control, that are theorized to emerge with compulsive and problematic use rather than repeated but non-problematic use (Robinson & Berridge, 2008). Moreover, we used a direct measure of attentional bias (i.e., MouseView.js), whereas most previous studies have used indirect measures (e.g., dot-probe tasks), which have been criticized for their poor reliability estimates and ability to truly assess attentional bias (O'Neill et al., 2020). It is also important to note the current ubiquity of cannabis across Canada, where participants in the present study resided. Cannabis was legalized in Canada in 2019, a regulatory change that was followed by the rapid establishment of both online and in-person cannabis retail stores, as well as an influx of advertisements for cannabis products on digital platforms and billboards (Rup et al., 2020). In Ontario alone, there were 1,714 provincially authorized cannabis retail stores open as of 2023 (Ontario Cannabis Store, 2023). Consequently, it is likely that Canadian postsecondary students are regularly exposed to cannabis-related marketing, which may in turn contribute to heightened normalization and interest in cannabis products. This may explain the presence of an overall attentional bias toward cannabis-related stimuli regardless of the extent to which an individual uses cannabis. The samples within each cannabis group were unequal in size, which may have contributed to inadequate power to detect significant between-group effects. Future research that examines attentional bias using MouseView.js in larger samples who are more balanced in terms of cannabis use status and are more demographically diverse (e.g., residing in jurisdictions where retail cannabis stores and associated advertising are not permitted) would be informative.

In the present study, we also observed acceptable ($> .70$) to excellent ($> .90$) Cronbach's alpha and split-half reliability coefficients for cannabis images, neutral images, and dwell difference among the classifications of non-cannabis use, recreational cannabis use, and problematic cannabis use. These findings indicate that both image sets and the dwell difference measure had high internal consistency across our

postsecondary sample. These results provide support for the reliability of MouseView.js as a method to measure attentional bias in the context of cannabis use. These results add to the current literature given the concerns raised regarding the reliability of indirect measures of attentional bias such as the dot-probe task (Dear et al., 2011; Price et al., 2015; Schmukle, 2005; Staugaard, 2009; Waechter et al., 2014), which limits confidence in previous findings. Consequently, the acceptable to excellent reliability estimates seen in the present research indicate that MouseView.js may carry utility as a novel, alternative paradigm to examine attentional bias in cannabis use and addictive behaviours more generally.

Taken together, results suggest that MouseView.js may provide an alternative, reliable method to assess cannabis-related attentional bias compared to the gold-standard eye-tracking paradigm (Yoon et al., 2019). Considering the ease and accessibility of its online recruitment, MouseView.js may provide a powerful new methodology in understanding the development and maintenance of attentional bias among both people who use cannabis specifically and addictions more generally. Although we did not observe significant between-group differences, there are still avenues for future cannabis research using this measure that could be explored. Some previous research has found that attentional bias toward substance-related cues varies within the same individual depending on state-level factors, such as self-reported temptation to use substances (Waters et al., 2011). It is possible that MouseView.js may be more sensitive to detecting dynamic within-person changes in attentional bias, including those related to current cannabis cravings and affective states, than to static between-group differences. Future studies could consider examining the extent to which MouseView.js captures within-person changes in attentional bias depending on state-level factors, which would increase our understanding of the dynamic processes that may underlie cue reactivity and cannabis use behaviours, as well as how fluctuations in attentional bias relate to momentary cravings and other markers of risk for problematic cannabis use.

It is also important to note that the present study was designed as an initial psychometric evaluation study with a primary focus on

reliability and convergent validity. MouseView.js was not compared to indirect methods to assess attentional bias (e.g., modified Stroop tasks), which is a robust method for assessing additional types of validity of the measure. However, as establishing the reliability of a measure is a prerequisite for determining the extent to which it meaningfully represents its construct of interest (Cronbach, 1984), the present study provides a foundation for future studies to build upon these findings with larger psychometric studies. For instance, to establish convergent validity with measures typically used to assess cannabis-related attentional bias, MouseView.js could be directly compared to face-dot-probe or modified Stroop tasks (O'Neill et al., 2020) to evaluate whether each measure captures similar dwell times on cannabis-related images. Moreover, predictive validity could be evaluated by examining the extent to which attentional bias metrics produced by MouseView.js predict outcomes that are clinically relevant to the maintenance and progression of problematic cannabis use, such as craving (Enkema et al., 2020) and symptom relapse (Sherman & McRae-Clark, 2016). Establishing these types of validity would further clarify whether MouseView.js captures underlying cannabis-related attentional bias processes in a more reliable manner than standard measures, which cannot necessarily be used as references for validity given their tendency to produce mixed findings and, in some cases, weak effects (Kroon et al., 2023; O'Neill et al., 2020).

Limitations

There are several limitations to the present study. First, the experiment was conducted online through Gorilla and Qualtrics, which do not allow for control over participants' attention and genuine engagement in the task, as would be possible in a laboratory-based setting. Second, a cross-sectional research design was employed, which precludes conclusions regarding the causal nature of the relationship between cannabis use and attentional bias. Relatedly, a self-report measure was used to assess problematic cannabis use. In future studies, a structured diagnostic interview may allow for more accurate and comprehensive identification of individuals who exhibit problematic cannabis use. Third, the

cannabis-related image set only included products and ingestion methods that reflect the inhalation of cannabis, which may have been limited in cuing attention among individuals who engage in alternative consumption methods (e.g., edible products), particularly in the legalized Canadian context where a variety of methods are available. Finally, the sample comprised postsecondary students, which may limit the generalizability of results to individuals beyond this population. However, postsecondary students may be a particularly appropriate sample among whom to test cannabis-related attentional bias given the high rates of problematic cannabis use often observed in this population (Prowse et al., 2025). Moreover, it is notable that the sample was ethnically diverse, with 71.9% of participants self-identifying as BIPOC, thus potentially increasing the generalizability of our findings to racialized minorities.

Conclusion

The present study sought to expand the limited literature on attentional bias in the context of cannabis use and to assess the preliminary reliability of a novel methodology, MouseView.js, to assess cannabis-related attentional bias. The findings of this study suggest that MouseView.js may be a reliable methodology to assess and detect cannabis-related attentional bias but may lack specificity to distinguish between groups with varying levels of cannabis use. Given the significant advantages of MouseView.js in terms of cost and reach of participants, it may be a powerful tool to further our understanding of the role of attentional bias in the development and maintenance of problematic cannabis use. Future research should expand upon this preliminary study to further explore the utility and applicability of MouseView.js for this purpose.

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Attentional Bias in Cannabis Use

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