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RESEARCH

The "Feeling" of inattention: ADHD symptoms and mind wandering beyond remembered thought content

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Abstract

Mind wandering is frequently associated with attention-deficit/hyperactivity disorder (ADHD) symptoms in adults, yet the precise nature of this relationship remains unclear. The current study applied an approach from mind-wandering research to the context of ADHD by distinguishing between remembered mind wandering, defined as explicitly recalling off-task thought content, and subjective feelings of inattention, defined as sensing that one's attention was off task without recalling specific thoughts. We investigated how these distinct aspects of off-task experience relate to ADHD symptomatology, well-being, impairment, and sustained-attention performance. Participants from university and online ADHD communities completed the Sustained Attention to Response Task (SART) with thought probes assessing remembered mind wandering and subjective inattention, along with measures of ADHD symptoms, well-being, and impairment. Results showed partially separable patterns of association: subjective feelings of inattention were associated with inattentive symptoms, well-being, impairment, and poorer SART performance, whereas remembered mind wandering was associated primarily with hyperactive–impulsive symptoms. These findings suggest that the association between mind wandering and ADHD depends on how off-task experience is defined and measured. More broadly, they highlight the importance of distinguishing metacognitive judgments about attentional state from reports of thought content when evaluating mind wandering, because reports of being off task may not always imply access to identifiable task-unrelated thoughts. By separating attentional state from accessible thought content, the present study helps clarify the complex relationship between mind wandering and ADHD and points to a broader measurement issue in research on inattention and off-task thought.

Attention-Deficit Hyperactivity Disorder (ADHD), a neurodevelopmental disorder, affects a significant portion of the population, with 5–7% of children and approximately 2.8% of adults experiencing its symptoms (Fayyad et al., 2017; Polanczyk et al., 2014; Sayal et al., 2018). While the diagnostic criteria for ADHD primarily focus on inattention and hyperactive-impulsive behaviors, which are more commonly observed in children, they may not fully capture the diverse symptoms experienced by adults with ADHD. One notable symptom that is particularly prevalent among adults is mind wandering, characterized by frequent shifts in attention from the task at hand to unrelated thoughts (i.e., uncontrolled thought processes; Asherson, 2005). This association suggests that a deeper understanding of mind wandering could be central in developing a comprehensive understanding of ADHD in adults, potentially leading to refined diagnostic criteria, improved predictive accuracy, and better assessment of treatment outcomes (Bozhilova et al., 2021; Seli et al., 2015a, b, c).

Despite the clear link between mind wandering and ADHD, research on this association remains limited (for a review, see Lanier et al., 2021). One challenge is that mind wandering is not a unitary phenomenon. Rather, it refers to a heterogeneous family of experiences that share certain core features, such as a decoupling of attention from the current task or external context, but differ in their content, intentionality, constraints, phenomenology, and metacognitive accessibility (Seli et al., 2018). As a result, progress in this area depends not only on clarifying terminology but also on specifying which features of mind wandering are most relevant to ADHD and how those features should be operationalized and measured (Kane et al., 2021).

In the present study, we use mind wandering as a broad umbrella term for attention shifting away from the current

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task or external context toward internally generated thought (Smallwood & Schooler, 2006). Within this broad construct are several related but non-identical forms of off-task thought (Seli et al., 2018). Here, we focus on distinctions that are most relevant to the present study and that have been used in prior work on ADHD, rather than attempting to review the full range of phenomena sometimes included under the mind-wandering umbrella. Task-unrelated thought refers to episodes in which thought content is unrelated to the task at hand (Giambra, 1989; Smallwood & Schooler, 2006). Spontaneous mind wandering refers to off-task thought that occurs unintentionally, whereas deliberate mind wandering refers to off-task thought that is intentionally engaged (Giambra & Grodsky, 1989; Grodsky & Giambra, 1990; Seli et al., 2015a, b, c, 2016). Other constructs, such as freely moving thought or unconstrained thought, emphasize variability, looseness, or reduced constraints in the flow of thought, rather than task-unrelatedness per se (Christoff et al., 2016; Daniel et al., 2025; Smith et al., 2022). These distinctions are important because different forms of mind wandering may have different antecedents, cognitive signatures, and clinical relevance.

Our primary distinction in the present study is between remembered off-task thought and subjective feelings of inattention (Mathews et al., 2024). Remembered off-task thought refers to instances in which participants report being off task and can recall the content of their thoughts. Subjective feelings of inattention refer to instances in which participants report being off task but cannot recall the content of those thoughts, instead inferring their inattentiveness from metacognitive cues. We also distinguish among ADHD-related cognitive constructs. We use executive control to refer broadly to the goal-directed regulation of attention and thought, whereas executive functions refer to specific component processes that support such control, including inhibition and working memory (Diamond, 2013; Miyake et al., 2000). Working memory is therefore treated as one executive function, rather than as synonymous with executive control (Baddeley, 2012). Executive-function difficulties are commonly implicated in ADHD (Willcutt, 2018).

To examine the relationship between mind wandering and ADHD, researchers have typically relied on self-report methods. These studies consistently reveal a positive correlation between ADHD symptoms and the tendency to engage in mind wandering (Biederman et al., 2019; Mowlem et al., 2019a, b; Smith et al., 2022). Interestingly, a key finding across these studies is that only spontaneous mind wandering, not deliberate mind wandering, is associated with ADHD symptoms (Seli et al., 2015a, b, c; Smith et al., 2022). This distinction is important because spontaneous mind wandering reflects lapses in executive control (e.g., failures to suppress off-task thoughts), whereas deliberate mind wandering results from a more engaged, controlled process (Seli et al., 2015a, b, c). Accordingly, the association between ADHD symptoms and spontaneous mind wandering may reflect difficulty regulating attention and suppressing task-unrelated thoughts in line with task goals.

Researchers have also used laboratory-based thought-probing approaches to investigate the relationship between mind wandering and ADHD. In these experiments, participants engage in tasks that require sustained attention, which are intermittently interrupted to ask whether they were experiencing mind wandering just before the pause. This method provides a more direct assessment of their attentional state and propensity for mind wandering (Kane et al., 2021). When mind wandering is defined as "task-unrelated thought," a consistent association emerges between the prevalence of mind wandering and ADHD symptoms (Bozhilova et al., 2021; Franklin et al., 2017; Hines & Shaw, 1993; Jonkman et al., 2017; Shaw & Giambra, 1993; Van den Driessche et al., 2017), highlighting the robustness of this relationship across different methodologies. Furthermore, studies that distinguish between spontaneous and deliberate mind wandering episodes find that only spontaneous episodes predict ADHD symptoms, corroborating the findings from self-report studies (Arabacı & Parris, 2018; Jonkman et al., 2017; Shaw & Giambra, 1993).

The reliable association between spontaneous task-unrelated thought and ADHD symptoms is frequently attributed to impairments in executive control, that is, difficulty maintaining task goals and suppressing distracting off-task thoughts. This perspective is in line with theoretical models of ADHD that identify deficits in executive functions, such as inhibition, working memory, and emotional regulation, as fundamental contributors to ADHD symptoms (e.g., Willcutt, 2018). These models posit that individuals with ADHD struggle to maintain focus on tasks due to difficulties in controlling their thoughts and impulses, leading to increased instances of spontaneous mind wandering.

Despite the emerging patterns, the literature on the relationship between ADHD symptoms and mind wandering presents some inconsistencies with the executive control failure hypothesis. Jonkman et al. (2017), using a non-clinical sample, found that mind wandering was uniquely associated with inattention symptoms and found no differences or moderating effects of working memory capacity on mind wandering across high and low ADHD-inattention groups. Jonkman et al. suggested that increased mind wandering in individuals with high ADHD-inattention symptoms may not solely stem from deficits in working memory or executive control. Instead, they proposed that the primary challenge lies in maintaining focus on task-relevant information and redirecting attention back to the task when faced

with distracting, *negative* thoughts. The authors speculated that increased mind wandering in this population may be more closely related to difficulties in regulating attention amidst emotional distraction rather than a fundamental lack of executive control. However, it is important to note that Jonkman et al.'s study design only compared participants high or low in inattention symptoms, with all participants being high in hyperactivity-impulsivity, which limits direct comparisons of the effects of these two symptom domains on mind wandering.

Adding to the complexity of the relationship between ADHD and mind wandering, recent studies have explored the concept of mind wandering as 'freely moving thoughts,' a definition introduced by Christoff et al. (2016) that focuses on thought content variability. However, the results of these studies have been mixed. While Alperin et al. (2021) observed an increase in freely moving thoughts among participants with high ADHD symptoms, two other studies reported no significant association (Daniel et al., 2025; Smith et al., 2022). Because freely moving thoughts is often conceptualized as a lack of control over one's thoughts (i.e., unconstrained thought), these inconsistent results further challenge the executive-failure hypothesis as the sole explanation for the relationship between ADHD symptoms and off-task experience. Together, these mixed findings raise the possibility that ADHD-related lapses are not always experienced as reportable streams of off-task thought but may sometimes involve content-poor or contentless episodes.

A related and increasingly influential literature concerns mind blanking, often defined as a temporary absence of thought content or an "empty mind" (Ward & Wegner, 2013). This literature is directly relevant to the present study because blank reports have been linked to attentional lapses and ADHD symptoms. Indeed, prior work suggests that ADHD-related lapses may be reflected more strongly in increased blank reports than in increased mind-wandering reports, indicating that some lapses may involve little or no accessible thought content rather than clearly reportable task-unrelated thought (Beikmohamadi & Meier, 2024; Madiouni et al., 2020; Van den Driessche et al., 2017). Subsequent work has further emphasized that blank states are conceptually and behaviorally distinct from other forms of off-task thought, while also noting that the construct of mind blanking remains heterogeneous and difficult to operationalize (Andrillon et al., 2025; Boulakis & Demertzi, 2025; Munoz-Musat et al., 2025; Van den Driessche et al., 2025).

This complexity is important for the present study. As Fell (2022) argues, the term mind blanking has sometimes blended distinct phenomena, including the absence of task focus, the absence of reportable thought content, and the stronger claim of a complete absence of conscious experience. Recent work similarly suggests that participants may use "blank" to describe experiences that are unclear, foggy, or difficult to characterize, rather than literally devoid of experience (Lal et al., 2025). Thus, blank reports may reflect multiple underlying states, including genuinely contentless experience, poorly encoded or rapidly fading thought, diffuse experience, or uncertainty about how to classify one's mental state.

Subjective feelings of inattention and mind blanking therefore overlap partially, but neither construct should be treated as a simple subset of the other. In the framework introduced by Mathews et al. (2024), participants distinguish between remembered off-task thought and subjective feelings of inattention by making two judgments: whether attention was on or off task, and whether the content of thought was reportable. Subjective feelings of inattention refer specifically to cases in which individuals judge themselves to have been off task while being unable to report what they were thinking about. This operationalization emphasizes a metacognitive evaluation of attentional state, rather than the presence or absence of conscious experience per se. It also avoids requiring participants to determine why thought content is unavailable. Participants need only indicate that they felt inattentive and could not report the content of their thoughts.

This distinction is important because content-unavailable or contentless experience is not necessarily equivalent to an attentional lapse. Subjective feelings of inattention may include some mind-blanking-like episodes, including cases in which thought content was genuinely absent. However, they may also include cases in which experience was fleeting, diffuse, poorly encoded, or otherwise unavailable for report. Conversely, some experiences that participants might describe as "blank" need not involve being off task. For example, people may sometimes be highly engaged in an ongoing activity while having little reportable content or difficulty articulating the contents of experience (Csikszentmihalyi, 1988; Parvizi-Wayne et al., 2024; van der Linden et al., 2021). Such cases could potentially elicit "blank" reports depending on probe wording and participants' interpretation of what "blank" means, but they would not constitute subjective feelings of inattention unless participants also judged themselves to have been off task.

Thus, subjective feelings of inattention should not be viewed as a superordinate category that fully contains mind-blanking experiences, nor should they be viewed as wholly independent of the mind-blanking literature. Rather, the constructs cut across one another. The present operationalization builds on this literature by separating two dimensions that are often conflated in blank-report probes: whether attention is judged to be on or off task, and whether thought content is reportable. This distinction makes it possible to examine whether off-task, content-unavailable episodes

are especially relevant to executive-control difficulties and ADHD-related impairment, while leaving open the possibility that future work could examine content-unavailable states that occur during on-task engagement.

Accordingly, in the current study, we further investigated the relationship between mind wandering and ADHD using the thought-probe approach introduced by Mathews et al. (2024), which distinguishes between remembered experiences of off-task thought and subjective feelings of inattention. We prioritized this distinction because it addresses a key ambiguity in prior work: ADHD-related lapses may involve identifiable episodes of task-unrelated thought, episodes in which individuals feel inattentive despite being unable to report what they were thinking about, or both. The latter experiences overlap with the mind-blanking literature, but they are not equivalent to mind blanking. Mind blanking is not inherently an off-task state and may refer to several forms of contentless, content-poor, or content-inaccessible experience (Andrillon et al., 2025). By contrast, subjective feelings of inattention are defined by the combination of an off-task judgment and an absence of reportable thought content. This operationalization therefore separates two dimensions that are often conflated in prior work: whether attention is judged to have drifted from the task and whether thought content is available for report. The distinction also differs from other common approaches to parsing mind wandering. For example, the spontaneous–deliberate distinction concerns the intentionality of off-task thought (Seli et al., 2015a, b, c, 2016), whereas the present distinction concerns whether an off-task state is accompanied by reportable thought content. Thus, this approach allows us to test whether ADHD symptoms are more closely associated with mind wandering as remembered task-unrelated thought, with subjective feelings of inattention, or with both.

The same distinction is also theoretically motivated by Thomson et al.'s (2015) Resource-Control Framework, which proposes that mind wandering can arise either when spare attentional resources are available or when executive control fails. Consistent with this framework, Mathews et al. (2024) found that remembered off-task thought was uniquely sensitive to attentional resource demands, whereas subjective feelings of inattention were uniquely associated with executive dysfunction and poorer task performance. Thus, remembered off-task thought and subjective feelings of inattention provide a theoretically grounded way to distinguish between off-task thought that may be supported by available attentional resources and states of felt inattention that may coincide with executive-control difficulties, ADHD symptoms, impairment, and performance decrements.

Our study had three objectives. First, we aimed to replicate the dissociation between remembered mind wandering and feelings of inattention in relation to task performance, as reported by Mathews et al. (2024). Given that their study was the first to use this novel measure, we sought to confirm the robustness of their key findings. We therefore hypothesized that subjective feelings of inattention would be associated with poorer SART performance, including higher error rates and greater response-time variability. In contrast, we expected remembered off-task thought to show weaker associations with SART performance, because remembered off-task thought is theorized to reflect the allocation of spare attentional resources rather than executive-control failure. Second, we investigated whether this distinction also applies to the relationships between mind wandering, ADHD symptoms, and well-being. Due to the perceived cognitive impairments associated with ADHD, we wanted to investigate whether there were differences in well-being between subjective feelings of inattention and remembered mind wandering. We hypothesized that only subjective feelings of inattention would predict ADHD symptoms and functional impairment, consistent with the previous study that linked subjective feelings of inattention to executive dysfunction (Mathews et al., 2024). However, observing differences in remembered experiences of off-task thought may also indicate poor contextual regulation of mind wandering or an inability to match one's control over mind wandering with the attentional resource demands of the task. Finally, our third goal was to examine the relationship between mind wandering and the specific symptom subdomains of ADHD—Inattention and Hyperactivity-Impulsivity—using our method for measuring mind wandering. By exploring these associations, we aimed to gain a more nuanced understanding of how different aspects of mind wandering relate to the core symptoms of ADHD.

Consistent with previous studies (e.g., Franklin et al., 2017; Seli et al., 2015a, b, c), we characterized ADHD as a continuum rather than a category. Many of the negative consequences associated with ADHD are also found in subclinical ADHD populations, and previous research has successfully construed ADHD as a continuum by measuring symptoms in subclinical samples and relating them to other measures of cognition and performance. One concern, however, is that by recruiting participants from the general population, we may be restricting our sample to the lower end of the continuum, limiting our ability to generalize our results. To improve the diversity of our sample and increase the likelihood of recruiting participants on the higher end of ADHD symptom scales, we employed a two-pronged approach to data collection. Our primary sample consisted of undergraduate students, which allowed us to conduct a well-powered study designed to detect individual differences in a subclinical population. Additionally, we actively recruited participants through online platforms, such as Reddit and Tumblr, specifically targeting communities focused

on ADHD. This strategy aimed to reach a broader range of individuals who may experience more pronounced ADHD symptoms, complementing our undergraduate sample. By combining these two recruitment methods, we sought to obtain a more representative and diverse sample, enhancing the generalizability of our findings, and enabling us to better capture the full spectrum of ADHD symptomatology.

Method

Participants

Participants were recruited from the University of Manitoba Psychology Department's SONA system and community sources, including online ADHD forums (Reddit and Tumblr) and the Cognitive Behavior Therapy Institute of Manitoba (CBTI). This approach aimed to target ADHD-specific groups more effectively. Students completed the study for course credit and participated in person, while the community participants volunteered and completed the study online. This study was approved by the Research Ethics Board at the University of Manitoba.

Using G*Power, we determined that with 200 participants, we were well-powered to detect small effects sizes for single regression coefficients, with 80% power to detect a Cohen's f^2 of .04 and 95% power to detect a Cohen's f^2 of .065. It was unclear how many participants would volunteer from the community sources; therefore, we aimed to recruit 200 participants from SONA to ensure sufficient statistical power, alongside as many participants as possible from community sources between February and April 2023.

A total of 202 participants were recruited through SONA, with an additional 71 from community sources (4 from the CBTI email list and 67 from Reddit and Tumblr), totaling 273 participants aged 17 to 62, including men, women, and non-binary individuals (see Table 1 for demographics).

Table 1 Demographics

	Student		Community	
	N	%	*N*	%
Age				
17–24	192	95.0	38	53.5
25–34	5	2.5	26	36.6
35–44	2	1.0	4	5.6
45–54	0	0.0	2	2.8
>54	0	0.0	1	1.4
No Response	3	1.5	0	0.0
Gender				
Woman	125	61.9	33	46.5
Man	69	34.2	8	11.3
Non-Binary	6	3.0	23	32.4
Self-Describe	0	0.0	7	9.9
No Response	2	1.0	0	0.0
Ethnicity				
White	103	51.0	49	73.1
Filipino	28	13.9	1	1.5
Black	19	9.4	1	1.5
South Asian	17	8.4	2	3.0
Indigenous	8	4.0	2	3.0
Chinese	7	3.5	5	7.5
Southeast Asian	5	2.5	2	3.0
Arab	4	2.0	1	1.5
Latin American	2	1.0	0	0.0
Korean	1	0.5	1	1.5
Japanese	1	0.5	0	0.0
Latin	0	0.0	1	1.5
Other	3	1.5	0	0.0
No Response	4	2.0	2	3.0
Clinical History				
Depression	25	12.4	31	43.7
ADHD	20	9.9	30	42.3
Anxiety Disorder	41	20.3	28	39.4
PTSD	7	3.5	8	11.3
TBI	10	5.0	3	4.2

Measures

Sustained Attention to response task

In the SART (Robertson et al., 1997), participants were shown digits from one to nine and had to press 'go' (i.e., the space bar) for all numbers except three, which was the 'no-go' signal. Each digit appeared for 350 ms, followed by a 950-ms mask, and participants were instructed to respond both quickly and accurately.

During the task, thought probes were intermittently presented to determine if participants were focused on the task or if their thoughts had wandered. These probes asked participants if they were "On task," "Off task and I remember what I was thinking about," or "Off task and I do NOT remember what I was thinking about" (Mathews et al., 2024).

Participants first completed a practice session comprising 12 go trials, 4 no-go trials, and one thought probe. During this practice phase, participants received immediate feedback following incorrect responses and a reminder of the SART instructions.

Following the practice session, participants completed the experimental session consisting of three blocks. Each block contained 254 go trials, 26 no-go trials, and 8 thought probes. The experiment, therefore, consisted of a total of 762 go trials, 78 no-go trials, and 24 thought probes. To ensure consistent distribution while maintaining unpredictability, each block was internally divided into eight sub-blocks, with one thought probe randomly positioned between trials 31–35 within each sub-block. This procedure resulted

in thought probes appearing at irregular intervals approximately every 45 s. The distribution of thought probes was further controlled to appear six times following a go trial and twice following a no-go trial within each block. During the experimental session, participants did not receive trial-to-trial feedback, however, following the completion of a block of trials, participants received a summary of their performance for that block, including average accuracy for the go and no-go trials and average response time for the go trials.

Adult ADHD self-report scale (ASRS)

The Adult ADHD Self-Report Scale (ASRS-v1.1) is an 18-item questionnaire which assesses ADHD symptoms. Participants were asked to answer questions based on how they had felt over the past six months. Participants were asked to rate each item on a 5-point scale (never, rarely, sometimes, often, very often). This assessment has previously shown high internal consistency (α = .88) and high concurrent validity (Adler et al., 2006; Kessler et al., 2005), and likewise observed high internal consistency for the current sample (α = .9; see Table 2).

Clinical history

Participants were asked to indicate whether they had been previously diagnosed with (1) "Attention-Deficit / Hyperactivity Disorder (ADHD)", (2) "Depression", (3) "An anxiety disorder", and/or (4) "Post-Traumatic Stress Disorder". If participants selected any of the above options, they were asked follow-up questions regarding medication and treatment (see Appendix 1 for the full questionnaire). Finally, participants were asked "Have you ever experienced a traumatic brain injury?".

Spontaneous and deliberate mind wandering scales

Participants responded to two mind wandering questionnaires, one for spontaneous mind wandering and the other for deliberate mind wandering (Carriere et al., 2013). Each questionnaire consisted of four statements. This measure was meant to assess the everyday mind wandering tendencies of the participants and provided additional data pertaining to how participants' mind wander. Participants were presented with a statement about mind wandering and were then asked to score each statement on a 7-point scale ranging

Table 2 Descriptive statistics

	Student		Community		Full sample				
Measure	Mean	SD	Mean	SD	Mean	SD	α	Kurt	Skew
SART Performance									
Go RT (ms)	324.89	68.69	345.34	72.06	330.46	70.08		3.97	1.66
Go ACC	0.97	0.02	0.99	0.01	0.98	0.02	-	1.48	−1.45
No-Go ACC	0.37	0.18	0.44	0.20	0.39	0.19	-	−0.01	0.58
Skill Index	1.12	0.45	1.26	0.47	1.16	0.46	-	−0.26	0.27
d-prime	1.75	0.82	2.37	0.79	1.92	0.86	-	−0.09	0.31
RTsd	174.06	57.68	203.23	42.50	182.00	55.44	-	0.49	−1.02
Thought Probe Responses									
On Task	0.53	0.27	0.53	0.26	0.53	0.26	-	−0.99	−0.08
Remembered Off Task Thought	0.27	0.18	0.32	0.20	0.28	0.18	-	0.43	0.68
Subjective Feelings of Inattention	0.20	0.20	0.15	0.18	0.18	0.20	-	1.05	1.21
Mind Wandering									
Spontaneous	3.64	1.35	4.55	1.37	3.89	1.41	0.87	−0.74	−0.35
Deliberate	3.45	1.36	4.27	1.35	3.68	1.40	0.85	−0.91	−0.09
Adult ADHD Self-Report Scale									
Overall	2.11	0.66	2.50	0.61	2.21	0.67	0.90	−0.10	−0.10
Inattention	2.29	0.70	2.82	0.66	2.44	0.73	0.85	−0.11	−0.19
Hyperactivity-Impulsivity	1.92	0.73	2.19	0.72	1.99	0.74	0.84	−0.48	−0.04
Recent Well-Being									
Cognitive Problems	2.19	1.03	2.83	0.79	2.36	1.01	0.82	−0.50	−0.33
Sleep Problems	1.97	1.14	2.45	1.08	2.10	1.14	0.43	−0.91	0.02
Physical Problems	1.12	0.79	0.99	0.80	1.08	0.80	0.79	0.83	0.96
Daily Impairment	1.55	0.92	2.09	0.93	1.69	0.95	0.82	−0.75	−0.18

from low to high occurrence. Both scales have high internal reliability, with both scales having an alpha of .80 across multiple previous studies (Carriere et al., 2013; Marcusson-Clavertz & Kjell, 2019), and high internal consistency in the current sample (α = .87 and α = .85, for the spontaneous and deliberate scales).

Recent mental and physical well-being

To assess recent well-being, we asked participants to first indicate whether, in the last two weeks, they had experienced cognitive problems (e.g., "Problems with attention"), physical problems (e.g., "Chest pain"), or sleep-related problems (e.g., "Tiredness or fatigue"). We also assessed daily impairment by inquiring about the difficulty that these problems caused in their daily lives within the last two weeks (e.g., "work", "friendships"). The full questionnaire can be found in Appendix 2.

Long COVID questionnaire (LCQ)

The LCQ is a newly developed questionnaire to assess participants history with COVID and potential long-term symptoms ("Long COVID"). The full questionnaire can be found in Appendix 1. The LCQ includes questions about participants' history with COVID, including infections and vaccinations. This questionnaire was included as part of a larger data-collection effort and not analyzed here.

Procedure

All participants completed the study online. University of Manitoba students enrolled via the institution's SONA participant management system, while community participants accessed the study through a direct experiment link. All participants provided digital consent by clicking an on-screen button after reviewing the consent form.

Following consent, participants received instructions for the Sustained Attention to Response Task (SART) and an explanation of the thought probes they would encounter during the experiment. Participants then completed a short practice session with trial-by-trial error feedback to ensure task comprehension. The experimental phase consisted of three SART blocks without trial-by-trial performance feedback.

After completing the attention task, participants responded to a series of questionnaires administered in the following sequence: the Adult ADHD Self-Report Scale, the Spontaneous and Deliberate Mind Wandering Scales, the clinical history questionnaire, the Long-COVID questionnaire, the recent well-being assessment, and, finally, a demographics questionnaire.

Data analysis

Software

Data were analyzed using R, version 4.4.0 (R Core Team, 2024) and a number of R packages including *tidyr* (Wickham et al., 2019), *papaja* (Aust & Barth, 2025), *sjPlot* (Lüdecke, 2024), *afex* (Singmann et al., 2025), and *psycho* (Makowski, 2018).

Modeling procedures and rationale

For the thought-probe data, we computed each participant's rate of remembered off-task thought and subjective feelings of inattention as the proportion of probes endorsing each category. These variables were treated as focal predictors across all analyses.

To evaluate whether the two probe measures exhibited distinct patterns of association, ADHD symptoms, SART performance, self-reported mind wandering, and recent well-being were treated as criterion variables in separate regression models. Across analyses, both probe measures were entered simultaneously as predictors, such that regression coefficients reflect the unique association of each measure with the criterion variable while controlling for the other probe measure. This analytic framework was used to compare the nomological profiles of remembered off-task thought and subjective feelings of inattention across theoretically relevant domains. For the ADHD symptom models, this specification tests whether individual differences in each probe measure are associated with current ADHD symptom severity, rather than whether ADHD symptoms predict task performance or probe responses. Thus, coefficients should be interpreted as statistical associations between the probe measures and ADHD symptoms, not as evidence that the probe measures cause ADHD symptoms. All models are correlational and are not intended to imply causal direction.

All analyses were conducted using linear regression. Models included age, gender, and sample source as covariates, unless otherwise specified. For ADHD symptom models, additional covariates representing clinical history were included: depression, anxiety disorders, post-traumatic stress disorder, and traumatic brain injury. These covariates were included because the ADHD symptom models were intended to test whether the thought-probe measures were associated with current ADHD symptoms above and beyond participants' broader clinical background and mind wandering has been shown to associate with a variety of clinical symptoms (e.g., Brosowsky et al., 2022; Seli et al., 2017, 2019; Smith et al., 2023). In contrast, the primary well-being models were specified to estimate the overall associations

between the thought-probe measures and recent well-being outcomes, without residualizing these associations for clinical history. However, because clinical history may also be relevant to well-being, we conducted sensitivity analyses in which the well-being models were re-estimated with the same clinical-history covariates included. These analyses were used to evaluate whether the primary well-being findings were robust to clinical-history adjustment.

Regression coefficients are reported with 95% confidence intervals. Confidence intervals for R^2 are reported as 90% intervals following (Steiger, 2004), as implemented in the *papaja* package (Aust & Barth, 2025), to correspond to an $\alpha = .05$ criterion.

Given the number of models tested, Benjamini–Hochberg false discovery rate (Benjamini & Hochberg, 1995) corrections were applied as robustness checks within each primary analysis domain. Corrections were applied to *p* values associated with the two focal predictors. Omnibus model tests and covariates were not included in these corrections because they were not the primary inferential focus. For ADHD symptoms, ASRS total score was treated as the primary outcome, whereas subscale and mutually adjusted subscale models were treated as follow-up analyses intended to characterize patterns observed in the total score.

SART performance indices

SART performance was summarized using four indices: skill index, d′, no-go accuracy, and intraindividual reaction-time variability. Traditional approaches have emphasized no-go accuracy as an index of attentional lapses (Robertson et al., 1997). More recent work has incorporated composite measures such as the skill index, which divides no-go accuracy by mean go-trial reaction time to account for the speed–accuracy trade-off (Jonker et al., 2013; Mathews et al., 2024; Seli, 2016; Seli et al., 2015a, b, c; adapted from Saucedo Marquez et al., 2013). Other approaches have used d′ as a signal detection–based measure of accuracy and intraindividual reaction-time variability as an index of attentional stability, which subtracts an individual's reaction time standard deviation from the maximum standard deviation in the sample (Kane et al., 2021). Including multiple indices allowed us to assess the consistency of observed associations across different operationalizations of task performance.

Results

Participants

We recruited 202 undergraduate students and 71 participants from online communities. A summary of the demographics is reported in Table 1. As anticipated, we found that our community sample was more diverse in terms of age and gender than our student sample, though the student sample was more diverse in terms of ethnicity. Also consistent with our predictions, we found that our community sample reported more severe ADHD symptoms ($M = 2.49$) than our student sample ($M = 2.11$), on average, $\Delta M = 0.38$, 95% CI $[0.21, 0.56]$, $t\,(131.54) = 4.43$, $p < .001$ (See Table 2).

Among the 273 participants, 50 (18.3%) self-reported a clinical diagnosis of ADHD. Within this diagnosed group, comorbidities were common, with 52% also having a diagnosis of depression, 56% an anxiety disorder, 16% post-traumatic stress disorder (PTSD), and 2% having experienced a traumatic brain injury.

Participants were excluded from further analyses if they failed to respond to at least 10% of SART trials, indicating noncompliance with task instructions (e.g., Seli et al., 2013), or did not provide required demographic information (age and gender). Of the 273 participants, 16 were excluded for failing to respond to at least 10% of trials and three additional participants were removed for missing demographic data.

Probe-caught mind wandering

For each of the following analyses, we fitted a linear regression model using Ordinary Least Squares and derived standardized parameters from the standardized dataset. To estimate 95% Confidence Intervals (CIs) and p-values, we employed a Wald t-distribution approximation. We excluded an additional three participants due to missing age or gender information before conducting the analyses.

To characterize the degree of overlap between the two probe measures, we examined their zero-order association and evaluated multicollinearity in the regression models. Remembered off-task thought and subjective feelings of inattention were not significantly correlated, $r = -.04$, 95% CI $[-.16, .08]$, $t\,(252) = -0.66$, $p = .507$, indicating minimal shared variance. Consistent with this result, multicollinearity diagnostics indicated that both predictors could be included in the same models, with variance inflation factors well below conventional thresholds, maximum VIF = 1.11. Together with the divergent patterns of association reported below, these results provide evidence that the two probe measures were empirically separable in the present data.

For simplicity, in this section we focus on the key effects of interest (see Fig. 1), while the complete results of each regression model are detailed in Appendix 2. A summary of the descriptive statistics for the student and community samples is presented in Table 2.

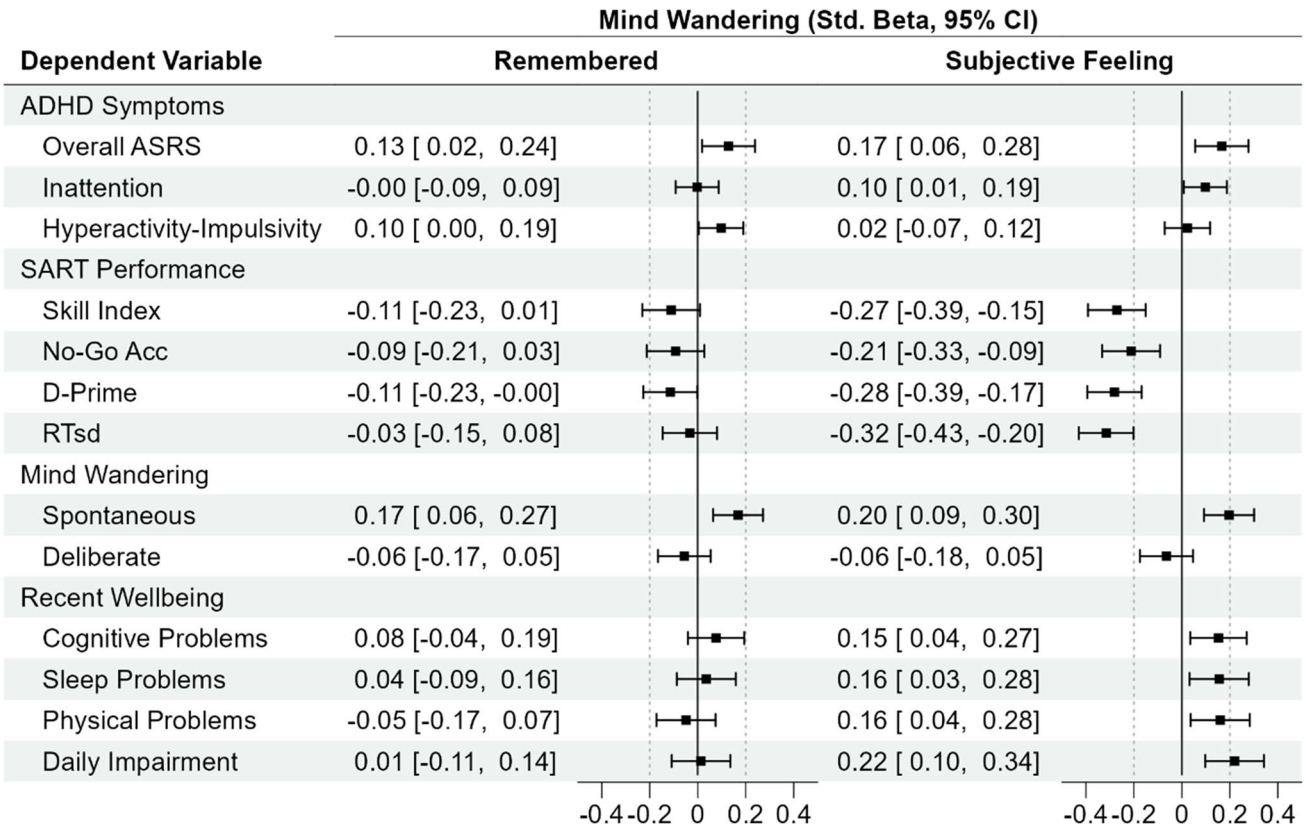

Fig. 1 Results of the regression analyses.*Note:* Each row in the figure represents a separate linear regression model predicting the dependent variable listed on the left. The models include two main predictors: remembered mind wandering and subjective feelings of inattention. Additionally, all models incorporate age, gender, and sample source (student vs. community) as covariates. For the analysis focusing on ADHD symptoms, clinical history measures (e.g., depression, anxiety, PTSD) were also included as covariates to account for the potential influence of comorbid conditions

SART performance

First, we examined the relationship between rates of probe-caught mind wandering and performance on the Sustained Attention to Response Task (SART). We investigated four indices of performance: the skill index, d-prime, no-go accuracy, and intraindividual reaction time (RT) variability.

We conducted four regression analyses, each using one of the performance metrics as the dependent variable. In all models, we included the remembered mind wandering ("Remembered") and subjective feelings of inattention ("Feeling") as predictors, and age, gender, and sample group (student versus community) as covariates.

The results of these analyses were consistent across all dependent measures (see Fig. 1). Subjective feelings of inattention significantly predicted skill ($b = -0.62$, 95% CI $[-0.90, -0.35]$, $t\,(247) = -4.44$, $p < .001$), d-prime ($b = -1.21$, 95% CI $[-1.70, -0.72]$, $t\,(247) = -4.90$, $p < .001$), no-go accuracy ($b = -0.20$, 95% CI $[-0.31, -0.08]$, $t\,(247) = -3.45$, $p < .001$), and RTsd ($b = -88.23$, 95% CI $[-120.13, -56.34]$, $t\,(247) = -5.45$, $p < .001$). In contrast, the rate of remembered mind wandering was not a significant predictor of skill ($b = -0.27$, 95% CI $[-0.57, 0.02]$, $t\,(247) = -1.82$, $p = .070$), no-go accuracy ($b = -0.09$, 95% CI $[-0.21, 0.03]$, $t\,(247) = -1.51$, $p = .132$), or RTsd ($b = -9.86$, 95% CI $[-44.08, 24.36]$, $t\,(247) = -0.57$, $p = .571$). But was significantly associated with d-prime ($b = -0.53$, 95% CI $[-1.05, -0.01]$, $t\,(247) = -2.00$, $p = .047$),

To evaluate whether the SART findings were robust to multiple-comparison correction, we applied a Benjamini–Hochberg false discovery rate correction across the eight focal SART tests, consisting of the two focal predictors across the four performance outcomes. The associations between subjective feelings of inattention and all four SART outcomes remained significant after correction. In contrast, the association between remembered mind wandering and d-prime, which was significant at the uncorrected threshold, did not survive correction. Thus, the SART findings most robustly support an association between subjective feelings of inattention and objective task performance, whereas the association between remembered mind wandering and d-prime should be interpreted cautiously.

ADHD symptoms

Total ASRS scores

A regression analysis was performed to investigate the relationship between mind wandering and total scores on the Adult ADHD Self-Report Scale (ASRS). The dependent variable was the mean total ASRS score, while the predictor variables included remembered mind wandering and subjective feelings of inattention. The model also incorporated the following covariates: age, gender, sample group, and clinical history measures (coded as 1 for presence and 0 for absence) for depression, anxiety disorders, Post-Traumatic Stress Disorder (PTSD), and previous traumatic brain injury (TBI).

The model accounted for a significant proportion of variance in ASRS scores, $R^2 = .28$, 90% CI $[0.17, 0.33]$, $F\,(10, 243) = 9.30$, $p < .001$. The analysis revealed that both subjective feelings of inattention ($b = 0.56$, 95% CI $[0.19, 0.94]$, $t\,(243) = 2.96$, $p = .003$), and remembered mind wandering ($b = 0.47$, 95% CI $[0.06, 0.87]$, $t\,(243) = 2.29$, $p = .023$) significantly predicted ASRS scores.

ASRS Total score was treated as the primary ADHD symptom outcome. We applied a Benjamini–Hochberg false discovery rate correction to the two focal predictor tests in this model. Both subjective feelings of inattention and remembered mind wandering remained significant after correction, indicating that the association between probe-caught attention measures and overall ADHD symptom burden was robust to this correction.

ASRS subscales

The ASRS Inattention and Hyperactivity-Impulsivity models were conducted as follow-up analyses to characterize the associations observed for ASRS Total scores. Because ASRS Total scores are composed of the Inattention and Hyperactivity-Impulsivity subscales, these models were not treated as independent primary tests. The mutually adjusted subscale models should therefore be interpreted as descriptive follow-up analyses rather than as separate confirmatory tests.

These analyses used the same model as the one applied to the total ASRS scores, incorporating the two predictors of mind wandering and the previously listed covariates. To account for potential overlapping variance between the subscales, the Inattention subscale was included as a covariate in the model predicting Hyperactivity-Impulsivity scores, and vice versa.

In the analysis predicting Inattention scores, the model accounted for a significant proportion of variance, $R^2 = .54$, 90% CI $[0.44, 0.59]$, $F\,(11, 242) = 25.44$, $p < .001$. When controlling for Hyperactivity-Impulsivity, subjective feelings of inattention emerged as a significant predictor of Inattention scores, $b = 0.36$, 95% CI $[0.03, 0.69]$, $t\,(242) = 2.15$, $p = .033$, while remembered mind wandering did not significantly contribute to the model, $b = -0.01$, 95% CI $[-0.36, 0.35]$, $t\,(242) = -0.05$, $p = .959$.

Similarly, the model predicting Hyperactivity-Impulsivity scores explained a significant proportion of variance, $R^2 = .49$, 90% CI $[0.39, 0.55]$, $F\,(11, 242) = 21.56$, $p < .001$. When controlling for Inattention scores, subjective feelings of inattention did not significantly predict Hyperactivity-Impulsivity, $b = 0.09$, 95% CI $[-0.27, 0.44]$, $t\,(242) = 0.48$, $p = .633$. In contrast, remembered mind wandering emerged as a significant predictor of Hyperactivity-Impulsivity, $b = 0.39$, 95% CI $[0.02, 0.76]$, $t\,(242) = 2.07$, $p = .040$.

These follow-up analyses suggested some specificity in the pattern of associations: subjective feelings of inattention were associated with ASRS Inattention scores after controlling for Hyperactivity-Impulsivity, whereas remembered mind wandering was associated with ASRS Hyperactivity-Impulsivity scores after controlling for Inattention. However, because these were follow-up analyses and the effects were close to the conventional significance threshold, they should be interpreted cautiously.

Recent mental and physical well-being

To predict recent well-being measures, we conducted regression analyses using remembered mind wandering and subjective feelings of inattention as predictors, while including age, gender, and sample source as covariates. The results showed that feelings of inattention significantly predicted recent cognitive problems ($b = 0.77$, 95% CI $[0.18, 1.37]$, $t\,(247) = 2.56$, $p = .011$), sleep problems ($b = 0.89$, 95% CI $[0.18, 1.60]$, $t\,(247) = 2.48$, $p = .014$), physical problems ($b = 0.64$, 95% CI $[0.15, 1.14]$, $t\,(247) = 2.55$, $p = .011$), and daily impairment ($b = 1.01$, 95% CI $[0.45, 1.57]$, $t\,(247) = 3.53$, $p < .001$). However, remembered mind wandering did not significantly predict cognitive problems ($b = 0.41$, 95% CI $[-0.22, 1.05]$, $t\,(247) = 1.28$, $p = .201$), sleep problems ($b = 0.22$, 95% CI $[-0.54, 0.98]$, $t\,(247) = 0.57$, $p = .569$), physical problems ($b = -0.21$, 95% CI $[-0.74, 0.32]$, $t\,(247) = -0.78$, $p = .435$), or daily impairment ($b = -0.01$, 95% CI $[-0.62, 0.59]$, $t\,(247) = -0.04$, $p = .969$).

To examine whether the well-being findings were robust to clinical-history adjustment, we repeated the well-being regression models including the same clinical-history variables used in the ADHD-symptom models. The results were substantively unchanged. Specifically, subjective feelings

of inattention remained associated with all well-being outcomes, *ps* < .05, whereas remembered off-task thought remained unrelated to well-being outcomes, *ps* > .05.

We applied a Benjamini–Hochberg false discovery rate correction across the eight focal well-being tests, consisting of the two focal predictors across the four recent well-being outcomes. The associations between subjective feelings of inattention and recent cognitive problems, sleep problems, physical problems, and daily impairment remained significant after correction. Remembered mind wandering was not significantly associated with any well-being outcome before or after correction. Thus, the well-being findings were robust for subjective feelings of inattention but not for remembered mind wandering.

Self-reported spontaneous and deliberate mind wandering

We also analyzed the relationship between the probe-caught mind wandering measures and participants' self-reported mind wandering, as assessed by the Spontaneous and Deliberate Mind Wandering Scales. To investigate this relationship, we conducted two linear regression analyses, with either Spontaneous or Deliberate mind wandering as the dependent variable. In each model, we controlled for the other type of mind wandering as a covariate and included remembered mind wandering and subjective feelings of inattention as predictors. Additionally, we incorporated age, gender, and sample group as covariates to account for potential confounding factors. This approach allowed us to examine the unique contributions of remembered mind wandering and subjective feelings of inattention to Spontaneous and Deliberate mind wandering, while controlling relevant demographic variables and the shared variance between the two types of self-reported mind wandering.

When predicting Spontaneous Mind Wandering while controlling for Deliberate Mind Wandering, we found that both remembered mind wandering ($b = 1.28$, 95% CI $[0.49, 2.07]$, $t\,(246) = 3.20$, $p = .002$) and subjective feelings of inattention ($b = 1.39$, 95% CI $[0.66, 2.13]$, $t\,(246) = 3.72$, $p < .001$) significantly predicted Spontaneous Mind Wandering.

In contrast, when predicting Deliberate Mind Wandering while controlling for Spontaneous Mind Wandering, we found that neither remembered mind wandering ($b = -0.42$, 95% CI $[-1.25, 0.40]$, $t\,(246) = -1.01$, $p = .314$) nor subjective feelings of inattention ($b = -0.45$, 95% CI $[-1.22, 0.32]$, $t\,(246) = -1.15$, $p = .253$) significantly predicted Deliberate Mind Wandering.

We applied a Benjamini–Hochberg false discovery rate correction across the four focal tests in the self-reported mind-wandering models, consisting of the two focal predictors across the Spontaneous and Deliberate Mind Wandering outcomes. The association between both remembered mind wandering and subjective feelings of inattention with Spontaneous Mind Wandering remained significant after correction. Neither predictor was significantly associated with Deliberate Mind Wandering before or after correction. Thus, the pattern of results was robust to correction and suggests that the probe-caught measures were specifically associated with spontaneous, rather than deliberate, self-reported mind wandering.

Exploratory specificity analyses: ASRS scores and recent cognitive problems

Because subjective feelings of inattention were associated with both ADHD symptoms and recent cognitive problems, we conducted exploratory specificity analyses to examine whether the association with ASRS Total scores was distinguishable from participants' recent cognitive complaints. Recent cognitive problems were selected as the primary comparator because this measure assessed state-dependent difficulties with attention, memory, brain fog, and related cognitive problems over the past two weeks. These analyses were intended to examine shared versus unique variance and should not be interpreted as causal tests, because recent cognitive problems may themselves reflect ADHD-related difficulties.

First, we repeated the ASRS Total model while adding recent cognitive problems as an additional covariate. This model accounted for a significant proportion of variance in ASRS scores, $R^2 = .63$, 90% CI $[0.55, 0.68]$, $F\,(11, 242) = 37.83$, $p < .001$. Subjective feelings of inattention remained a significant predictor of ASRS Total scores after accounting for recent cognitive problems, $b = 0.27$, 95% CI $[0.00, 0.54]$, $t\,(242) = 1.98$, $p = .049$. In contrast, remembered mind wandering no longer significantly predicted ASRS Total scores in this adjusted model, $b = 0.23$, 95% CI $[-0.06, 0.52]$, $t\,(242) = 1.54$, $p = .124$. Recent cognitive problems were also associated with ASRS Total scores, $b = 0.46$, 95% CI $[0.40, 0.52]$, $t\,(242) = 15.30$, $p < .001$.

Second, we tested the complementary model predicting recent cognitive problems while including ASRS Total scores as an additional covariate. This model accounted for a significant proportion of variance in recent cognitive problems, $R^2 = .62$, 90% CI $[0.54, 0.66]$, $F\,(11, 242) = 35.95$, $p < .001$. In this model, ASRS Total scores significantly predicted recent cognitive problems, $b = 1.06$, 95% CI $[0.92, 1.20]$, $t\,(242) = 15.30$, $p < .001$, whereas subjective feelings of inattention, $b = 0.03$, 95% CI $[-0.38, 0.45]$, $t\,(242) = 0.15$, $p = .878$, and remembered mind wandering, $b = 0.02$, 95% CI $[-0.42, 0.46]$, $t\,(242) = 0.10$, $p = .917$, did not remain significant predictors.

Together, these exploratory analyses suggest a partially differentiated pattern. Subjective feelings of inattention remain associated with ASRS Total scores after accounting for recent cognitive complaints, suggesting that this association was not entirely attributable to current cognitive problems. However, subjective feelings of inattention did not independently predict recent cognitive problems once ASRS Total scores were included, indicating substantial overlap between recent cognitive complaints and ADHD symptom burden. Remembered mind wandering did not remain associated with ASRS Total scores after accounting for recent cognitive problems, although the follow-up subscale analyses below suggest that remembered mind wandering may show a more specific association with hyperactivity-impulsivity symptoms.

Discussion

In the current study, we investigated the relationship between ADHD symptoms, well-being, and inattention using a sustained attention to response task (SART; Robertson et al., 1997) and a thought probe that distinguishes between remembered experiences of mind wandering and subjective feelings of inattention (Mathews et al., 2024). Our sample included both students and participants recruited from online ADHD communities. As hypothesized, the community sample reported more severe ADHD symptoms and was more demographically diverse in terms of gender and age, but not ethnicity. Additionally, we found higher rates of self-reported ADHD diagnoses within our community sample (42%) as compared to our student sample (10%). Across all participants, there were high levels of comorbidity, particularly for self-reported diagnoses of depression (52%) and anxiety disorders (56%).

Our findings replicate and extend those of Mathews et al. (2024) by showing distinct associations between subjective inattention and remembered mind wandering in the prediction of SART performance. Subjective feelings of inattention predicted poorer Skill Index performance, whereas remembered mind wandering did not. The Skill Index provides a measure of response efficiency that incorporates both no-go accuracy and go-trial response speed. The index is not intended to determine whether participants prioritized speed over accuracy, or accuracy over speed. Instead, it provides a summary of how accurately participants responded relative to their response speed. In the SART, attentional lapses can take different behavioral forms, including fast, habitual responding that increases commission errors, slower or more variable responding that may reflect delayed processing or compensatory caution, or some combination of these patterns. Lower Skill Index scores therefore indicate reduced efficiency in maintaining accurate performance at a given response speed, although the index does not distinguish among the mechanisms producing that inefficiency.

This interpretation of the Skill Index helps clarify why subjective feelings of inattention, rather than remembered mind wandering, were associated with poorer response efficiency. Remembered mind wandering may reflect episodes in which attention shifts toward internally generated thought that is sufficiently coherent or accessible to be encoded and later reported. By contrast, subjective inattention may reflect a more diffuse state of disengagement in which participants experience reduced task focus without necessarily being able to retrieve specific off-task content. From this perspective, the association between subjective inattention and poorer Skill Index performance suggests that felt disengagement is linked to reduced response efficiency, consistent with less stable task-set maintenance or impaired executive control.

The broader pattern of SART findings is consistent with this interpretation. Commission errors reflect failures to withhold the prepotent go response, and their association with subjective inattention suggests that felt disengagement may coincide with more automatic or habitual responding. Reaction time variability indexes moment-to-moment fluctuations in attentional engagement (e.g., Brosowsky et al., 2023; Kane et al., 2021; Mathews et al., 2024), and its association with subjective inattention further suggests instability between engaged and disengaged states. In addition, d′, which reflects sensitivity to the distinction between go and no-go stimuli while accounting for response bias, was also associated with subjective feelings of inattention. This pattern suggests that felt disengagement is linked not only to inefficient and unstable responding but also to reduced sensitivity to task-relevant information, consistent with a broader disruption of attentional control. There was, however, a marginal association between remembered mind wandering and d′. This effect should be interpreted cautiously, but it may indicate that reportable off-task thought can, at times, reduce perceptual or decisional sensitivity, perhaps by diverting processing resources or through perceptual decoupling (Schooler et al., 2011). Overall, remembered mind wandering showed less consistent associations with behavioral impairment than subjective inattention.

Together, these findings are consistent with the idea that poor SART performance reflects failures of executive control that may also be experienced subjectively as inattention, particularly in the absence of clearly reportable thought content. Thus, the most performance-relevant attentional failures in the SART may not be task-unrelated thoughts themselves, but broader lapses in task control that

coincide with feelings of disengagement. Subjective feelings of inattention may therefore provide a more sensitive marker of these lapses than remembered mind wandering, as reflected in its associations with poorer response efficiency, increased inhibitory failures, and greater variability in task engagement.

The divergence between remembered mind wandering and subjective inattention refines how mind-wandering constructs should be interpreted. Both measures were associated with spontaneous, but not deliberate, mind wandering, replicating Mathews et al. (2024). However, their divergent associations with SART performance suggest that they are not interchangeable. Remembered mind wandering most closely matches the conventional definition of mind wandering as task-unrelated thought: participants report being off task and can remember the content of the thoughts occupying attention (Smallwood & Schooler, 2006). In contrast, subjective inattention reflects the feeling of being disengaged without necessarily having access to reportable thought content. The fact that subjective inattention was more consistently associated with poorer SART performance suggests that the performance costs often attributed to mind wandering may be more closely tied to lapses in attentional or executive control than to task-unrelated thought content itself.

This distinction has implications for how standard thought-probe methods classify off-task experience (Weinstein, 2018). Traditional on-task/off-task probes may conflate remembered task-unrelated thought and subjective feelings of inattention. In the first case, participants report being "off task" because they can identify task-unrelated thoughts that occupied attention. In the second, participants may report being "off task" because they feel disengaged, even though they cannot retrieve specific thought content. Conversely, when probes define off-task thought primarily in terms of identifiable task-unrelated content (e.g., "personal worries", "everyday things", "current state of things", etc.), participants who feel inattentive but cannot remember what they were thinking may classify the episode as "on task." Category-based probes may reduce some ambiguity, but they may not fully resolve, this issue. For example, a participant might select a category such as "daydreaming" when they know they were disengaged, even if they cannot remember the specific content of their thoughts (Kane et al., 2021). Thus, associations between task-unrelated thought reports and performance may depend partly on how probes classify content-inaccessible or poorly remembered states of inattention.

More broadly, the present results challenge a simple interpretation of the mind-wandering-performance link. If task-unrelated thought content were the primary source of SART impairment, remembered mind wandering should have shown the strongest and most consistent associations with performance. Instead, subjective feelings of inattention were the more robust predictor. This pattern suggests that theories of mind wandering should distinguish not only between deliberate and spontaneous thought, but also between task engagement and content accessibility. Remembered mind wandering may reflect a shift in the contents of attention, whereas subjective feelings of inattention may mark lapses in attentional regulation that are more closely aligned with behavioral variability and performance failure. Notably, this emphasis on attentional regulation aligns with findings from the mind-blanking literature, where rates of mind blanking do not consistently predict task performance (e.g., Beikmohamadi & Meier, 2024; Ward & Wegner, 2013). Together, these results suggest that the mere absence of reportable content is not sufficient to explain behavioral impairment. What appears more critical is whether an off-task episode reflects a breakdown in control versus a structured shift in thought, a framing that is consistent with dual-pathway accounts of mind wandering (Mathews et al., 2024; Thomson et al., 2015). On this view, subjective feelings of inattention may be more consistent with control-failure accounts of mind wandering, whereas remembered mind wandering may reflect a more accessible and organized form of internally generated thought.

In addition to these divergent associations, we observed different relationships between ADHD symptoms, well-being, and off-task thought type. These findings should be interpreted in the context of ADHD heterogeneity. Although ADHD is often treated as a single diagnostic category, inattentive and hyperactive–impulsive symptoms represent partially separable dimensions with distinct correlates (Lahey & Willcutt, 2010; Luo et al., 2019; Willcutt et al., 2012). Inattentive symptoms are typically associated with difficulties sustaining attention, maintaining task goals, and regulating cognitive effort, whereas hyperactive–impulsive symptoms are more closely linked to behavioral disinhibition and difficulties regulating action (Barkley, 1997; Castellanos et al., 2005; Sonuga-Barke, 2002).

Consistent with this distinction, subjective feelings of inattention predicted overall ASRS scores, the ASRS inattention subscale, and all measures of recent well-being and impairment. This pattern suggests that subjective inattention captures an impairment-relevant form of disengagement that is closely aligned with ADHD symptom burden, particularly inattentive symptoms. This interpretation is consistent with prior work linking ADHD, and especially inattentive symptoms, to sustained attention failures, executive-control deficits, reaction time variability, and functional impairment (Castellanos et al., 2005; Kofler et al., 2013; Willcutt et al., 2005), as well as reduced quality of life in adulthood (Agarwal et al., 2012; Kooij et al., 2010).

Subjective feelings of inattention may therefore reflect difficulty maintaining task goals rather than the mere occurrence of task-unrelated thought.

At the same time, subjective feelings of inattention were associated with a broader set of recent difficulties, including cognitive complaints, sleep problems, physical symptoms, and daily impairment. This broader pattern suggests that subjective inattention may also reflect a more general, state-dependent dimension of cognitive and functional strain. However, exploratory specificity analyses indicated that subjective inattention remained associated with ADHD symptoms after controlling for recent cognitive difficulties, whereas neither subjective inattention nor remembered mind wandering accounted for unique variance in recent cognitive difficulties after controlling for ADHD symptoms. These results suggest that subjective inattention was more specifically tied to ADHD symptom burden than to recent cognitive difficulties per se, despite its broader zero-order associations with recent well-being and impairment.

The pattern for remembered mind wandering was more selective. Remembered mind wandering predicted overall ASRS scores and the ASRS hyperactivity–impulsivity subscale, but not the inattention subscale or recent well-being outcomes. This finding helps situate the present results within prior work linking ADHD to elevated spontaneous or task-unrelated thought, often interpreted as reflecting impaired executive control or difficulty constraining attention to the task (Arabacı & Parris, 2018; Seli et al., 2015a, b, c; Shaw & Giambra, 1993). More recent work has also proposed excessive mind wandering as a clinically meaningful feature of adult ADHD (Bozhilova et al., 2021; Mowlem et al., 2019a, b). The present findings refine this account by suggesting that remembered mind wandering may not be uniformly associated with ADHD-related impairment. Instead, its association may be more closely tied to hyperactive–impulsive symptoms.

One possibility is that remembered mind wandering reflects a relatively active and accessible form of internal experience. This may be relevant to hyperactive–impulsive symptoms insofar as adult hyperactivity is often expressed as internal restlessness or excessive mental activity, rather than only overt motor activity (Asherson et al., 2016; Biederman, 2000; Kooij et al., 2010). Franklin et al. (2017) emphasized meta-awareness as an important factor in the consequences of mind wandering, suggesting that off-task thought may be especially disruptive when individuals fail to notice attentional drift. Although the present study did not directly assess meta-awareness, the distinction between remembered mind wandering and subjective inattention may capture a related dimension: remembered mind wandering requires some access to thought content, whereas subjective inattention reflects disengagement with reduced access to ongoing cognition.

Taken together, these findings suggest that ADHD-related impairment may not be tied to task-unrelated thought per se, but to the specific form of off-task experience being assessed. Subjective inattention may be a marker of performance- and impairment-relevant disruption in attentional regulation, particularly in relation to inattentive symptoms. Remembered mind wandering, by contrast, was less consistently associated with impairment but showed a narrower association with hyperactive–impulsive symptoms. Because the present study examined symptom dimensions rather than clinically diagnosed ADHD presentations, these findings should not be interpreted as evidence for differences between diagnostic subtypes. Rather, the results point to a differentiated account in which subjective inattention and remembered mind wandering capture separable aspects of off-task experience that map differently onto ADHD symptom dimensions.

Another limitation of the present study is that subjective feelings of inattention do not identify why thought content was unavailable. Such reports may reflect genuinely absent content, degraded or diffuse content, fleeting thoughts that were not encoded, or metacognitive inaccessibility at the time of the probe. We therefore do not interpret these reports as evidence for a single phenomenological state, nor do we assume that participants can reliably distinguish among these possibilities. Rather, the construct is defined operationally by the conjunction of an off-task judgment and the absence of reportable content.

The absence of reportable content may nevertheless be theoretically informative. Failures of executive control could contribute to content unavailability through several non-mutually exclusive mechanisms. One possibility is that unstable task-set maintenance disrupts the organization of ongoing thought itself, such that attention disengages from the task without stabilizing around a coherent internal train of thought. This possibility is consistent with dynamic accounts of spontaneous thought, which propose that unconstrained thought varies in the degree to which it is guided, stabilized, or organized by deliberate and automatic constraints (Christoff et al., 2016; Irving, 2016). It may also help explain why prior work has not consistently linked unconstrained thought to ADHD symptoms (Alperin et al., 2021; Daniel et al., 2025; Smith et al., 2022). Measures of unconstrained thought capture variation in how loosely thought is constrained, but they do not necessarily indicate whether this looseness occurs during task engagement or disengagement. If ADHD-related impairment is more closely tied to weakly constrained thought in the context of task disengagement, then measures that collapse across on-task and off-task unconstrained thought may obscure this

association (Brosowsky et al., 2021; O'Neill et al., 2020; Smith et al., 2021; see also Seli et al., 2025). Alternatively, off-task thought may occur but be too fragmented, fleeting, or weakly encoded to be retrieved when the probe appears. A further possibility is that executive-control failures impair metacognitive monitoring of thought content, leaving individuals unable to identify, reconstruct, or confidently report what they had been thinking. Each mechanism could produce the same behavioral report: the participant recognizes that attention was not on the task but cannot provide accessible thought content.

Recent work on mind blanking provides an important framework for distinguishing among these possibilities. This literature has shown that people sometimes report having "nothing in mind," while also emphasizing that blank reports may reflect heterogeneous states. As Fell (2022) argues, the term "mind blanking" has often been used ambiguously, blending the absence of task focus, the absence of reportable thought content, and the stronger claim of a complete absence of conscious experience. Recent reviews reinforce this concern, noting substantial heterogeneity in how mind blanking has been defined and operationalized (Andrillon et al., 2025; Boulakis & Demertzi, 2025). The present findings are most directly relevant to the first two components. Our measure does not imply that participants lacked conscious experience altogether. Rather, it identifies moments in which participants judged themselves to be off task but could not report the content of their thoughts. Because this measure requires participants to make an off-task judgment, it is not intended to capture cases in which participants felt unable to evaluate whether attention had been directed toward the task at all. In this respect, the present results support calls for more conceptually refined experience-sampling methods that distinguish task focus, thought content, content accessibility, and conscious experience more carefully.

Two caveats follow from this interpretation. First, participants may not have introspective access to the mechanism responsible for the absence of reportable content. Consistent with this concern, recent construct-validity work suggests that "mind blanking" reports may be used in heterogeneous ways, including to describe experiences that feel foggy, unclear, or difficult to characterize rather than literally blank (Lal et al., 2025). Neurophysiological and behavioral approaches may therefore be especially useful for identifying the mechanisms that give rise to blankness or content unavailability (Andrillon et al., 2025; Boulakis & Demertzi, 2025; Munoz-Musat et al., 2025). Second, mind blanking and off-task attention are not equivalent. Mind blanking probes typically ask whether the mind was blank or empty, but they do not always require participants to indicate whether attention was on or off task. This distinction matters because a report of absent or unavailable content need not indicate an attentional lapse. A participant might report little or no thought content while remaining focused on the task, whereas another might report a blank mind while also feeling disengaged. Relatedly, Brosowsky et al. (2021) found that retrospective flow reports were positively associated with on-task unconstrained thought but negatively associated with off-task unconstrained thought, indicating that low-constraint or difficult-to-characterize experience may have different implications depending on whether it occurs in the context of task engagement or disengagement.

Our method may therefore provide a useful complement to standard mind-blanking probes. Rather than asking participants to determine why they lacked reportable content, it asks for two simpler judgments: whether they were off task and whether they could report the content of their thoughts. This approach should capture some experiences that would be described as mind blanking, while also including other cases in which thought content was degraded, weakly encoded, or metacognitively inaccessible. Thus, although the measure is not specific to mind blanking, it may be well suited for research questions focused on when off-task states lack reportable content and how those states relate to task performance.

From this perspective, the emphasis shifts from the presence or absence of content to whether attentional regulation was sufficient to stabilize, encode, or monitor ongoing thought in a reportable form. Consistent with this interpretation, subjective inattention was associated with poorer SART performance, particularly indices of inefficient task engagement and unstable control, as well as ADHD-related inattention and impairment. The present findings leave open the phenomenological mechanism by which thought content becomes unavailable, while suggesting that content unavailability may arise in the context of disrupted executive control. Future work combining blankness reports with judgments about task focus, behavioral measures, and neurophysiological indices will be important for identifying these mechanisms more precisely.

Taken together, these findings suggest that the relationship between ADHD and mind wandering is not uniform across symptom domains. Subjective inattention was more closely tied to inattentive and impairment-related features of ADHD, whereas remembered mind wandering was more closely tied to hyperactive–impulsive symptoms. More broadly, the present findings suggest that common measures of task-unrelated thought and spontaneous mind wandering may collapse experiences that differ in content accessibility, task engagement, and behavioral relevance. The critical distinction may therefore not be simply whether thought is task-related or task-unrelated, or whether mind wandering is deliberate or spontaneous, but whether an off-task state involves accessible thought content, disrupted task

engagement, or both. By distinguishing remembered off-task thought from subjective inattention without reportable content, the present study highlights a theoretically and clinically meaningful distinction. Experiences that most closely resemble canonical mind wandering may not be the ones most consistently associated with performance impairment. Instead, poor performance and ADHD-related impairment may be more closely linked to failures of attentional regulation that coincide with subjective feelings of inattention, sometimes in the absence of accessible thought content.

Appendix 1

Clinical History Questionnaire

1. "Have you ever been diagnosed with any of the below? Select all that apply."

    a. "Attention-Deficit / Hyperactivity Disorder (ADHD)"
    b. "Depression"
    c. "An anxiety disorder"
    d. "Post-Traumatic Stress Disorder"
    e. "None of the above"

2. [If participants selected one of a through d]

    a. "Are you currently taking medication for any of the selected diagnoses?"
    b. "Have you previously taken medication for any of the selected diagnoses?"
    c. "Were you on your medication when you completed this study?"
    d. "Are you currently seeking treatment for any of the above diagnoses?"
    e. "Have you previously sought treatment for any of the above diagnoses?"

3. "Have you ever experienced a traumatic brain injury?"

Long COVID Questionnaire

1. "Have you received a vaccine for COVID-19?" [Yes/No/I Prefer Not to Answer]
2. When were you FIRST vaccinated for COVID-19? [Month/Year]
3. When were you LAST vaccinated for COVID-19? [Month/Year]
4. How many vaccine doses have you received to date? [Numeric]
5. "Have you ever been, or suspect you have been, infected with COVID-19?" [Yes/No/I Prefer Not to Answer]
6. "Have you had a positive test for COVID-19?" [Yes/No/I Prefer Not to Answer]
7. "How many times have you had, or suspected you had, COVID-19?" [Numeric]
8. "When was the LAST time you knew, or suspected you had, COVID-19?" [Month/Year]
9. "How would you describe your coronavirus symptoms when they were at their worst?" [1 (No Symptoms) to 5 (Severe Symptoms)]
10. "Did you, at any point, require hospitalization for COVID-19?" [Yes/No/I Prefer Not to Answer]
11. "How would you describe your coronavirus symptoms NOW?" [1 (No Symptoms) to 5 (Severe Symptoms)]

Recent Mental and Physical Well-being Questionnaire

1. "In the last two weeks, how frequently have you experienced the following problems:" ["1 Never", "2 Rarely", "3 Occasionally", "4 A moderate amount", "5 A great deal"]

    a. Problems with attention (e.g., difficulty concentrating or maintaining focus)
    b. Problems with memory (e.g., forgetfulness, word-finding difficulty)
    c. Problems with brain fog (e.g., feeling sluggish, jet-lagged, or blanked out)
    d. Tiredness or fatigue
    e. Problems with sleep (e.g., difficulty falling asleep, insomnia)
    f. Difficulty breathing or shortness of breath.
    g. Joint or muscle pain
    h. Fast-beating or pounding heart (also known as heart palpitations)
    i. Chest pain
    j. Dizziness
    k. Headaches

2. "How much difficulty do these problems cause in your…" ["1 No Difficulty", "2 Minimal Difficulty", "3 Some Difficulty", "4 Moderate Difficulty","5 Severe Difficulty", "Not Applicable"]

    a. Work or Job
    b. Schooling or educational activities
    c. Relationships with friends
    d. Relationships with romantic partners.
    e. Parenting.
    f. Organization of daily life.
    g. Daily self-care (e.g., bathing/hygiene, exercise, eating).
    h. Ability to get a good night's sleep.

Appendix 2

Table 3 SART performance regression models

	Skill index				
Predictors	*Estimates*	*std. Beta*	*CI*	*standardized CI*	*p*
(Intercept)	1.28	0.12	0.91–1.65	-0.27–0.51	**<0.001**
Source [student]	-0.06	-0.13	-0.23–0.11	-0.50–0.24	0.474
Age	0.01	0.08	-0.01–0.02	-0.07–0.22	0.296
Gender [non-binary]	0.05	0.10	-0.16–0.25	-0.35–0.55	0.660
Gender [woman]	-0.03	-0.06	-0.15–0.10	-0.34–0.21	0.654
MW: Remembered	-0.27	-0.11	-0.57–0.02	-0.23–0.01	0.070
MW: Subj. Feeling	-0.62	-0.27	-0.90 – -0.35	-0.39 – -0.15	**<0.001**
Observations	254				
R^2/R^2 adjusted	0.113/0.091				
	No-Go Accuracy				
Predictors	*Estimates*	*std. Beta*	*CI*	*std. CI*	*p*
(Intercept)	0.36	-0.01	0.21–0.51	-0.40–0.38	**<0.001**
Source [student]	-0.02	-0.13	-0.09–0.05	-0.50–0.25	0.506
Age	0.00	0.14	-0.00–0.01	-0.00–0.29	0.055
Gender [non-binary]	0.05	0.25	-0.04–0.13	-0.21–0.70	0.286
Gender [woman]	0.02	0.11	-0.03–0.07	-0.16–0.39	0.429
MW: Remembered	-0.09	-0.09	-0.21–0.03	-0.21–0.03	0.132
MW: Subj. Feeling	-0.20	-0.21	-0.31 – -0.08	-0.33 – -0.09	**0.001**
Observations	254				
R^2/R^2 adjusted	0.105/0.083				
	d-Prime				
Predictors	*Estimates*	*std. Beta*	*CI*	*std. CI*	*p*
(Intercept)	2.10	0.26	1.45–2.75	-0.10–0.62	**<0.001**
Source [student]	-0.36	-0.42	-0.65 – -0.06	-0.76 – -0.07	**0.019**
Age	0.02	0.13	-0.00–0.04	-0.00–0.27	0.054
Gender [non-binary]	0.25	0.29	-0.11–0.62	-0.13–0.72	0.173
Gender [woman]	0.00	0.00	-0.22–0.22	-0.25–0.26	0.984
MW: Remembered	-0.53	-0.11	-1.05 – -0.01	-0.23 – -0.00	**0.047**
MW: Subj. Feeling	-1.21	-0.28	-1.70 – -0.72	-0.39 – -0.17	**<0.001**
Observations	254				
R^2/R^2 adjusted	0.217/0.198				
	RTsd				
Predictors	*Estimates*	*std. Beta*	*CI*	*std. CI*	*p*
(Intercept)	354.55	0.46	311.95–397.15	0.09–0.83	**<0.001**
Source [student]	-17.97	-0.32	-37.44–1.49	-0.67–0.03	0.070
Age	0.61	0.07	-0.67–1.89	-0.07–0.20	0.350
Gender [non-binary]	0.70	0.01	-23.14–24.55	-0.42–0.44	0.954
Gender [woman]	-21.69	-0.39	-36.11 – -7.28	-0.65 – -0.13	**0.003**
MW: Remembered	-9.86	-0.03	-44.08–24.36	-0.15–0.08	0.571
MW: Subj. Feeling	-88.23	-0.32	-120.13 – -56.34	-0.43 – -0.20	**<0.001**
Observations	254				
R^2/R^2 adjusted	0.204/0.184				

Table 4 ADHD symptom regression models

	ASRS: Overall				
Predictors	*Estimates*	*std. Beta*	*CI*	*standardized CI*	*p*
(Intercept)	2.21	0.15	1.72–2.71	-0.21–0.51	<0.001
Source [student]	-0.01	-0.12	-0.03–0.00	-0.25–0.01	0.078
Age	0.36	0.53	0.07–0.65	0.10–0.97	0.015
Gender [non-binary]	0.04	0.06	-0.13–0.21	-0.19–0.31	0.651
Gender [woman]	-0.24	-0.35	-0.47 – -0.01	-0.70 – -0.01	0.042
MW: Remembered	0.47	0.13	0.06–0.87	0.02–0.24	0.023
MW: Subj. Feeling	0.56	0.17	0.19–0.94	0.06–0.28	0.003
Depression	0.27	0.16	0.03–0.50	0.02–0.31	0.025
Anxiety	0.38	0.25	0.19–0.58	0.12–0.38	<0.001
PTSD	-0.34	-0.12	-0.70–0.02	-0.24–0.01	0.067
TBI	0.40	0.13	0.05–0.74	0.02–0.23	0.025
Observations	254				
R^2/R^2 adjusted	0.254/0.226				
	ASRS: Inattentive				
Predictors	*Estimates*	*std. Beta*	*CI*	*standardized CI*	*p*
(Intercept)	1.40	0.28	0.93–1.87	-0.01–0.56	<0.001
Source [student]	-0.00	-0.01	-0.01–0.01	-0.11–0.10	0.919
Age	0.12	0.16	-0.14–0.37	-0.19–0.51	0.365
Gender [non-binary]	-0.03	-0.05	-0.18–0.11	-0.25–0.15	0.642
Gender [woman]	-0.27	-0.37	-0.47 – -0.07	-0.65 – -0.10	0.008
MW: Remembered	-0.01	-0.00	-0.36–0.35	-0.09–0.09	0.959
MW: Subj. Feeling	0.36	0.10	0.03–0.69	0.01–0.19	0.033
ASRS: Hyperactivity	0.57	0.58	0.47–0.66	0.48–0.67	<0.001
Depression	0.22	0.12	0.01–0.42	0.01–0.24	0.038
Anxiety	0.14	0.08	-0.04–0.32	-0.02–0.19	0.117
PTSD	-0.29	-0.10	-0.61–0.02	-0.20–0.01	0.066
TBI	-0.01	-0.00	-0.32–0.29	-0.09–0.09	0.943
Observations	254				
R^2/R^2 adjusted	0.536/0.515				
	ASRS: Hyperactivity-Impulsivity				
Predictors	*Estimates*	*std. Beta*	*CI*	*standardized CI*	*p*
(Intercept)	0.35	-0.17	-0.18–0.88	-0.47–0.13	0.195
Source [student]	-0.01	-0.08	-0.02–0.00	-0.20–0.03	0.144
Age	0.17	0.23	-0.10–0.44	-0.13–0.60	0.213
Gender [non-binary]	0.07	0.09	-0.09–0.22	-0.12–0.30	0.391
Gender [woman]	0.09	0.12	-0.12–0.31	-0.17–0.41	0.408
MW: Remembered	0.39	0.10	0.02–0.76	0.00–0.19	0.040
MW: Subj. Feeling	0.09	0.02	-0.27–0.44	-0.07–0.12	0.633
ASRS: Inattentive	0.63	0.63	0.53–0.74	0.52–0.73	<0.001
Depression	-0.01	-0.00	-0.23–0.21	-0.12–0.12	0.947
Anxiety	0.17	0.10	-0.02–0.35	-0.01–0.21	0.081
PTSD	0.03	0.01	-0.30–0.37	-0.10–0.12	0.849
TBI	0.33	0.10	0.01–0.66	0.00–0.19	0.041
Observations	254				
R^2/R^2 adjusted	0.495/0.472				

Table 5 Recent well-being regression models

	Cognitive Problems				
Predictors	*Estimates*	*std. Beta*	*CI*	*standardized CI*	*p*
(Intercept)	2.73	0.24	1.93–3.52	-0.14–0.61	**<0.001**
Source [student]	-0.62	-0.62	-0.99 – -0.26	-0.98 – -0.26	**0.001**
Age	-0.02	-0.11	-0.04–0.01	-0.25–0.04	0.143
Gender [non-binary]	0.51	0.51	0.06–0.95	0.06–0.95	**0.025**
Gender [woman]	0.25	0.25	-0.02–0.52	-0.02–0.52	0.066
MW: Remembered	0.41	0.08	-0.22–1.05	-0.04–0.19	0.201
MW: Subj. Feeling	0.77	0.15	0.18–1.37	0.04–0.27	**0.011**
Observations	254				
R^2/R^2 adjusted	0.150/0.129				
	Sleep Problems				
Predictors	*Estimates*	*std. Beta*	*CI*	*standardized CI*	*p*
(Intercept)	2.03	0.15	1.08–2.97	-0.25–0.54	**<0.001**
Source [student]	-0.39	-0.34	-0.82–0.05	-0.72–0.04	0.079
Age	0.00	0.01	-0.03–0.03	-0.14–0.16	0.916
Gender [non-binary]	0.29	0.25	-0.24–0.81	-0.21–0.72	0.289
Gender [woman]	0.13	0.11	-0.19–0.45	-0.17–0.39	0.432
MW: Remembered	0.22	0.04	-0.54–0.98	-0.09–0.16	0.569
MW: Subj. Feeling	0.89	0.16	0.18–1.60	0.03–0.28	**0.014**
Observations	254				
R^2/R^2 adjusted	0.064/0.042				
	Physical Problems				
Predictors	*Estimates*	*std. Beta*	*CI*	*standardized CI*	*p*
(Intercept)	0.93	-0.36	0.27–1.60	-0.75–0.04	**0.006**
Source [student]	0.13	0.16	-0.17–0.43	-0.22–0.54	0.396
Age	-0.01	-0.07	-0.03–0.01	-0.21–0.08	0.385
Gender [non-binary]	0.34	0.43	-0.03–0.71	-0.04–0.89	0.070
Gender [woman]	0.25	0.31	0.02–0.47	0.03–0.59	**0.032**
MW: Remembered	-0.21	-0.05	-0.74–0.32	-0.17–0.07	0.435
MW: Subj. Feeling	0.64	0.16	0.15–1.14	0.04–0.28	**0.011**
Observations	254				
R^2/R^2 adjusted	0.066/0.043				
	Daily Impairment				
Predictors	*Estimates*	*std. Beta*	*CI*	*standardized CI*	*p*
(Intercept)	2.13	0.26	1.38–2.88	-0.12–0.64	**<0.001**
Source [student]	-0.56	-0.59	-0.90 – -0.22	-0.95 – -0.23	**0.002**
Age	-0.02	-0.11	-0.04–0.01	-0.25–0.04	0.147
Gender [non-binary]	0.43	0.45	0.00–0.85	0.00–0.89	**0.048**
Gender [woman]	0.17	0.18	-0.09–0.42	-0.09–0.45	0.192
MW: Remembered	-0.01	-0.00	-0.62–0.59	-0.12–0.12	0.969
MW: Subj. Feeling	1.01	0.21	0.45–1.57	0.09–0.33	**<0.001**
Observations	254				
R^2/R^2 adjusted	0.141/0.120				

Table 6 Spontaneous and deliberate mind wandering regression models

	Spontaneous Mind Wandering				
Predictors	*Estimates*	*std. Beta*	*CI*	*standardized CI*	*p*
(Intercept)	1.17	-0.07	-0.01–2.34	-0.39–0.28	0.06
Source [student]	-0.18	-0.12	-0.64–0.29	-0.44–0.22	0.53
Age	0.02	0.09	-0.01–0.05	-0.04–0.21	0.17
Gender [non-binary]	0.69	0.49	0.14–1.24	0.05–0.82	0.03
Gender [woman]	0.22	0.16	-0.11–0.55	-0.10–0.36	0.27
MWD	0.42	0.42	0.31–0.53	0.34–0.55	<0.001
MW: Remembered	1.28	0.17	0.49–2.07	0.05–0.25	<0.01
MW: Subj. Feeling	1.39	0.20	0.66–2.13	0.10–0.31	<0.001
Observations	254				
R^2/R^2 adjusted	0.338/0.319				
	Deliberate Mind Wandering				
Predictors	*Estimates*	*std. Beta*	*CI*	*standardized CI*	*p*
(Intercept)	4.17	0.55	3.08–5.26	0.20–0.90	<0.001
Source [student]	-0.89	-0.64	-1.35 – -0.42	-0.98 – -0.30	<0.001
Age	-0.06	-0.25	-0.09 – -0.03	-0.38 – -0.12	<0.001
Gender [non-binary]	-0.18	-0.13	-0.75–0.39	-0.54–0.28	0.532
Gender [woman]	-0.16	-0.11	-0.50–0.18	-0.36–0.13	0.367
MWS	0.44	0.45	0.33–0.56	0.33–0.57	<0.001
MW: Remembered	-0.42	-0.06	-1.25–0.40	-0.17–0.05	0.314
MW: Subj. Feeling	-0.45	-0.06	-1.22–0.32	-0.18–0.05	0.253
Observations	254				
R^2/R^2 adjusted	0.287/0.267				

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Data availability All data, analysis code, and materials are available at https://osf.io/bscv4/.

Declarations

Ethical considerations This study was approved by the Research Ethics Board at the University of Manitoba.

Consent to participate All participants received a digital consent form prior to the study, indicating their consent to participate by clicking on the 'accept' button.

Consent for publication Not applicable.

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