Research Article

ISSN 3071-2904

International Journal of Mental Health Research

# Mind Wandering: A Narrative Review

**Tiffany Field, PhD***

*University of Miami, Miller School of Medicine and Fielding Graduate University, USA.*

***Correspondence:**
Tiffany Field, PhD, University of Miami, Miller School of Medicine and Fielding Graduate University, USA.

**Received:** 09 Jun 2026; **Accepted:** 15 Jul 2026; **Published:** 26 Jul 2026

**Citation:** Tiffany Field. Mind Wandering: A Narrative Review. Int J Ment Health Res. 2026; 1(3): 1-7.

## ABSTRACT

*Mind wandering reputedly consumes approximately 30 to 50% of our daily thinking time and it is driven by the brain's default mode network. Mind wandering has reputedly been similar across cultures. During unrestricted mind wandering, more thoughts occurred that were positive and future oriented. One of four thoughts during mind wandering was an imaginary thought. Negative cognitive effects of mind wandering have included decreased attention, reduced memory, rumination, and anxious decision-making. Negative behavior effects have included inferior performance, increased omission errors, emotional dysregulation, hyperactivity symptoms, obsessive compulsive symptoms, problematic alcohol use and lower sleep quality. Several predictors/risk factors have been noted including young age, neuroticism, supine position, lack of curiosity, negative affect, increased wakefulness, less mindfulness, blinking, and cannabis use. A few potential underlying biological mechanisms for mind wandering have been researched including activation of the gray matter network, the default mode network and the left superior parietal lobe. Methodological limitations of this literature include arbitrary selection of mediator variables and cross-sectional data that have limited directionality conclusions.*

## Keywords

Mind wandering, Default mode network (DMN), Attention, Spontaneous cognition, Task-unrelated thoughts, Cognitive performance, Rumination, Mindfulness, Executive function.

## Mind Wandering: A Narrative Review

Mind wandering has been defined by Google as a shift in attention away from the present task to internal, task-unrelated thoughts. It reputedly consumes about 30 to 50% of our daily thinking time and it is driven by the brain's default mode network. It acts as a "double-edged sword" in that it can spark creativity but can also cause distraction and unhappiness. Two types of mind wandering have been studied including spontaneous mind wandering which involves intrusive thoughts that occur without your awareness and deliberate mind wandering which is an intentional drifting toward other thoughts typically during steady activities like taking a walk or a shower or swimming laps or trying to fall asleep.

The research for this narrative review involved entering the terms mind wandering and the years 2024 to 2026 in PubMed and PsycINFO. Exclusion criteria included case studies and non-English language papers. This narrative review includes 50 papers on mind wandering. They can be categorized as the frequency of mind wandering (10 papers), effects of mind wandering (18 papers), risk factors/predictors of mind wandering (19), and potential underlying biological mechanisms (3). These sections are followed by a discussion on methodological limitations of this current literature.

## Definition and Frequency Research

Several research groups have explored the definition and frequency of mind wandering (see Table 1). In a paper entitled "Elucidating the differences between mind wandering and daydreaming terms", mind wandering was said to be planning, worrying and ruminating thoughts in situations involving other activities/tasks [1]. Daydreaming, in contrast, was defined as recalling past events and fantasizing in situations without another activity or task.

Mind wandering has reputedly been similar across cultures. In a study entitled "Mind wandering in China and the UK: evidence of **cross – cultural consistency**", more negative outcomes from mind wandering occurred in China than the UK [5]. The reliability and interpretation of these results are tenuous given the small sample size (17 in each group).

**Table 1:** Definition and frequency of mind wandering (and first authors).

| Definition and Frequency | First Authors |
|---|---|
| Mind wandering versus daydreaming | Shimoni |
| Intentional and unintentional | Shubert |
| Video features and EEG | Tang |
| Self-escape | Racy |
| Similar across cultures | Du |
| 8-12-year-old children-23% time | Teague |
| 8-9-year-old children-24% time | Cherry |
| Increase from grade 4 to grade 6 | Gao |
| Younger, older, cognitively impaired-30% time | Aschenbrenner |
| Less frequent in older adults | Aschenbrenner |
| Viewing older faces is more frequent in mind wandering adults | Cantarella |

The **percentage time** that mind wandering occurs has been consistent, ranging from 23% to 30% of time across ages. In a sample of young children (N=77 children 8–12-years-old), mind wandering was said to occur **23% of the time** [6]. The children with lower mood engaged in more frequent mind wandering. Low mood was associated with past-oriented mind wandering, worry and future-oriented mind wandering. Directionality of these variables was not determined, as these were cross-sectional not longitudinal data. And self-report from such young children may not be reliable data.

In a similar sample of young children (N= 60 children 8-9 years-old), the children reported being off task **24% of the time** [7]. Most of the mind wandering episodes were unrelated to the tasks (9%) or they were attentional failures due to distractions (9%). Greater mind wandering was, not surprisingly, related to less memory recall of the audio stories given to the children.

In a sample of younger (N=66), older (N=54) and cognitively impaired adults (N=38), three weeks of testing showed that **30% of waking thoughts** involved mind wandering [8]. More mind wandering was noted in the younger adults and the cognitively impaired. Those who engaged in more mind wandering showed inferior task performance including reaction time variability on a memory task. These data were not surprising as mind wandering would be expected to result in inferior performance.

In a cross-sectional and longitudinal change study, mind wandering was again noted to be less frequent in older adults (N=277 adults 42 to 94 years old) [9]. Based on thought probes these longitudinal data suggested that middle-aged adults showed greater mind wandering.

In a study on viewing older and younger faces and how that contributed to mind wandering, viewing older versus younger faces led to more aware mind wandering [10]. In this sample (N=27) viewing one's own versus another's face led to unaware mind wandering involving self – related future – oriented thoughts.

Deliberate mind wandering has notably **increased from grade 4 to grade 6** in a large sample of children (N=4302) [11]. In contrast, spontaneous mind wandering did not increase from grade 4 to grade 6. The increase in deliberate mind wandering likely paralleled the increase in cognitive development, but the lack of change in spontaneous mind wandering was surprising as changes in spontaneous mind wandering usually parallel changes in deliberate mind wandering.

## Positive and Negative Mind Wandering Effects

Several mind wandering effects have been the focus of research in this current literature. They can be categorized as cognitive and behavioral effects.

## Positive Cognitive Effects

The cognitive effects can be further categorized as positive or negative (Table 2). The positive cognitive effects include an increase in imaginary thoughts and creative responses.

**Table 2:** Positive and negative cognitive effects of mind wandering (and first authors).

| Positive Effects | First Authors |
|---|---|
| Imaginary thoughts | Halleyson |
| Creative responses | Rodriguez-Boerwinkle |
| Creativity and neural network activation | Feng |
| Negative Effects | |
| Less attention in preschoolers | Ziane |
| Less attentional vigilance in adults | Zanesco |
| Less working memory | Cotton |
| Greater reaction time variability on memory task | Aschenbrenner |
| Greater rumination | Xu |
| Brooding and anxious decision making styles | Siddiqi |

In a comparison of thoughts during restricted and unrestricted mind wandering, a mindfulness task was given for the restricted mind wandering condition. During unrestricted mind wandering, more thoughts occurred that were positive and future-oriented. One of four thoughts during unrestricted mind wandering was an **imaginary thought**. The 3 out of 4 thoughts that were not imaginary thoughts in the unrestricted condition were likely related to being in an experiment and the thoughts during restricted mind wandering likely related to concentrating on the mindfulness task.

Another study on mind wandering that was conducted in and out of the laboratory, revealed highly creative responses [12]. Not surprisingly, the **creative responses** were positively associated with episodes of more fantastical, unrealistic mind wandering or "daydreaming".

In research entitled "How freely moving mind wandering relates to creativity: behavioral and neural evidence", fMRIs were performed on a surprisingly large sample given the expense of fMRIs (N=1316) [13]. In this sample, mind wandering was a mediator of the relationship between **creativity** and neural network activation. As a mediator, mind wandering was likely a more active contributor than the predictor variable (creativity) to the outcome variable (neural network activation).

## Negative Cognitive Effects

Negative cognitive effects of mind wandering have included reduced attention, reduced memory, rumination, and anxious decision-making (see table 2). In a study entitled "Mind wandering and its relationship with sustained attention and executive function in preschoolers", the title is misleading as mind wandering was associated with less attention, which would be expected [14]. In this sample (N= 60 children 4-to 6-years old), a negative relationship was noted between mind wandering and **attention** as well as a negative relationship between mind wandering and executive function. Again, the reliability of self-report on mind wandering by young children is questionable.

Mind wandering has also been associated with worsening **attentional vigilance** in a sample of adults (N= 730) [15]. Attentional vigilance was measured by task accuracy and response time, with task accuracy decreasing and response time increasing over time. Just as for the preschool children sample, negative effects of mind wandering on attention were noted for the adult sample.

**Memory** has also been negatively affected by mind wandering. In remote online experiments, the remote participants versus the non-remote participants reported greater mind wandering and inferior performance on a working memory task [16]. This result would be expected due to the multiple distractions during online situations and less attention to the working memory task.

Mind wandering has also led to reaction time variability on memory tasks as reported earlier [8]. This was particularly true for the younger adults and cognitively impaired adults in that sample.

**Rumination** is another negative cognitive effect of mind wandering. In a paper entitled "The mind wanders to dark places: mind wandering catalyzes rumination in the context of negative affect and impulsivity", the results are in the title [17]. In this sample (N= 44 young adults with major depression disorder and 38 healthy adults), rumination was a negative effect of mind wandering. Surprisingly, depression did not have a negative effect.

**Decision-making styles** have also been negatively affected by mind wandering. In one sample (N= 210), mind wandering significantly predicted confident, vigilant, brooding and anxious decision – making styles [18]. This seemed to be an arbitrary selection of decision-making styles. The brooding and anxious styles seem consistent with mind wandering but the confident and vigilant styles seem inconsistent with mind wandering.

## Negative Behavioral Effects

Several negative behavioral effects have been noted for mind wandering (see table 3). They include inferior performance, omission errors, inferior sports performance, emotional dysregulation, hyperactivity, obsessive compulsive symptoms, problematic alcohol use and low sleep quality.

**Table 3:** Negative behavioral effects of mind wandering (and first authors).

| Negative Behavioral Effects | First Authors |
|---|---|
| Inferior performance | Langeslag |
| Increased omission errors | Safati |
| Inferior sports performance | Li |
| Emotional dysregulation | Gekkers |
| Hyperactivity symptoms | Li |
| Obsessive compulsive symptoms | Gayner |
| Problematic alcohol use | Liu |
| Low sleep quality | Carciofo |

**Performance** has been negatively affected by mind wandering in distracting situations. In a paper entitled "Mind wandering about the beloved: self–reported distraction task performance and enjoyment", the results are in the title [19]. This research group reported that mind wandering occurred as much as 67% of the time in general and 42% of the time during task performance. These time estimates were positively associated with passionate love, but not companionate love. Slower responses to go/no go stimuli were noted in the passionate love situation. This may have been related to the high arousal level that probably occurred during the passionate love situation.

Mind wandering effects are exacerbated when participants are asked to mind wander. In a paper entitled "Mind wandering on command", participants (N=336) were asked to mind wander during a metronome response task. When they were asked to "mind wander" 40%, 60% and 80% of the time, mind wandering (both spontaneous and deliberate) led to variable response times and an **increase in omission errors [20]**. Surprisingly, when the participants were asked to "mind wander" only 20% of the time, less mind wandering occurred. This finding suggests that people can titrate the amount of time that they mind wander.

The complexity of mind wandering effects can be noted in a study on **sports performance.** In this paper entitled "Costs over benefits: mind wandering in sporting performance", both positive and negative effects of mind wandering were noted [21]. In this sample of Chinese athletes (N=51), performance reported in interviews was not only influenced by mind wandering, but also by its source, competition anxiety, content of mind wandering, attention resources and attention control. Surprisingly, these multiple predictors were not entered into a regression analysis to determine their relative contribution to sports performance.

**Emotional dysregulation** has also occurred following mind wandering. In a sample of community adolescents (N=626), mind wandering was linked to general impairment and emotional dysregulation as well as ADHD symptoms. General impairment and emotional dysregulation could also be classified as symptoms.

**Hyperactivity symptoms** have also resulted from mind wandering in research entitled "The role of mind wandering and anxiety in the association between Internet addiction and hyperactivity" [22]. In this sample (N=2042 adolescents), both mind wandering and anxiety mediated the relationship between Internet addiction and

hyperactivity. In mediation analysis like the one in this study, it would be important to determine the relative contribution of the different mediators to the outcome variable. In this serial mediation, while the title implies that mind wandering was the primary mediator, anxiety, unlike mind wandering, has led to hyperactivity in other studies suggesting that it too was a significant mediator.

Mind wandering has also led to **obsessive-compulsive symptoms [23]**. These results might relate to the study being conducted during Covid-19 when people were confined to their homes and were spending time alone, suggesting that they might have experienced more mind wandering as well as more obsessive-compulsive symptoms. Surprisingly, no studies on mind wandering in people living alone versus people living with others have appeared in this literature.

Mind wandering has also been correlated with **problematic alcohol use**. In a study entitled "High mind wandering correlates with high risk of problematic alcohol use in China and Germany", the results are in the title. [24]. In these samples (N=1123 in China and 1018 in Germany.) the participants were given the Mind Wandering Questionnaire and the Alcohol Use Disorders Identification Test. Mind wandering was a risk factor in both countries, although it led to greater alcohol use in Germany than China for some uninterpretable reason.

Mind wandering has also resulted in **less sleep quality** in a sample of university students (N= 306, mean age =20) [25]. In this sample, “eveningness” led to spontaneous mind wandering. Spontaneous mind wandering in turn led to lower sleep quality. The mind wandering which often leads to sleep may have led to high arousal in these students which contributed to insomnia and lower sleep quality.

## Predictors/Risk Factors

Several predictors/risk factors have been noted for mind wandering (see table 4). These include young age, neuroticism, supine position, lack of curiosity, negative affect, increased wakefulness, less mindfulness, blinking, and cannabis use.

**Young age** has been a predictor of mind wandering in at least two studies. In one study, younger adults showed more mind wandering and poorer performance on a go/no go task [26]. Older adults reported less mind wandering but also less negative thoughts, likely enabling them to concentrate better on the go/no go task and show better performance.

**Neuroticism** has also been related to mind wandering. In a paper, entitled “The Big Five Personality and mind wandering in athletes – mediating role of trait anxiety”, neuroticism was positively correlated with mind wandering in athletes (N=681) [28]. The other four personality traits including openness, conscientiousness, extroversion and agreeableness were negatively correlated with mind wandering. These data were based on the Athlete Mind Wandering Scale. These results were not surprising given that mind wandering is typically associated with negative traits like neuroticism.

**Table 4:** Predictors/risk factors for mind wandering (and first authors).

| Predictors/Risk Factors | First Authors |
|---|---|
| Young age | Welhaf |
| Neuroticism | Li |
| Supine position | Qian |
| Curiosity | Ariza |
| Attention control | Welhaf |
| Negative affect | Umeda |
| Wakefulness | Simor |
| Mindfulness | Cheung |
| Blinking | Riby |
| Increased delta waves | Soltanzadeh |
| Cannabis | Safati |

Being in a **supine position** has also affected mind wandering. In research on different posture positions, mind wandering happened more frequently in supine versus standing and sitting positions [29]. This was not surprising inasmuch as the supine position is usually a napping or sleeping position and mind wandering often occurs before naps and sleep. It’s not clear whether eyes were open or closed during this study, which would likely make a difference. More mind wandering might be expected during eyes closed.

**Curiosity** and mind wandering have been negatively correlated during a music listening task [30]. It's not clear from the study whether the participants reported curiosity about the music or just being in a curiosity state during the music. The participants’ responses may have been “socially desirable responses”. They may have felt that reporting curiosity was a more socially acceptable state to report than mind wandering. Curiosity would lead to greater attention and, thereby, less mind wandering.

**Emotional valence and attention control** have been negatively related to mind wandering. Task unrelated thoughts that are negatively valenced or without awareness are associated with worse performance [31]. Not surprisingly, attention control was negatively related to mind wandering in this sample as attention control would be expected to reduce mind wandering.

**Negative affect** has also been the focus of a study on mind wandering in university students [32]. In this sample of Japanese students (N= 168) negative affect mediated the relationships between self-compassion, mindfulness and mind wandering. Mediators need to be based on theory. Mindfulness might be considered an opposite to mind wandering but negative affect as a mediator would be expected to enhance mind wandering. It is not clear why self-compassion would be related to mind wandering.

**Increased wakefulness** has also predicted mind wandering In a paper entitled "Reduced REM and N2 sleep and lower dream intensity predict increased mind wandering", the results are in the title [33]. In this sample (N=67) EEGs were recorded for seven nights to determine the different types of sleep and sleep intensity. Greater wakefulness was also noted at night and greater mind wandering was reported the next day.

**Mindfulness** was also a predictor of mind wandering. In a study entitled "Self – compassion and grit mediated the relation between mindfulness and mind wandering based on cross-sectional survey data", the results are in the title [34]. In this sample (N= 487 with a mean age of 39), mindfulness led to self-compassion which led to grit which led to decreased mind wandering. Again, this appears to have been an arbitrary selection of mediator variables, although the linkage between mindfulness and self-compassion also appeared in the paper on negative affect.

**Blinking** is also predictive of mind wandering or an indicator of mind wandering. In a study entitled "Elevated blink rates predict mind wandering: dopaminergic insights into attention and task focus", blink rate was a proxy for dopamine [35]. Blink rate can be a proxy for dopamine given that both blink rate and dopamine are related to activation. In this sample, blink rate predicted greater task unrelated thinking.

Bright blue light has led to more sustained attention and reduced activation of mind wandering related neural regions as shown by decreased Delta waves. In this sample (N= 20) the mind wandering network was activated accompanied by **increased Delta** during the white light condition. It's not surprising that the bright blue light contributed to greater attention as bright light enables attention. And increased delta has been associated with drowsiness/sleepiness as well as sleep states so its association with mind wandering was not surprising.

**Cannabis** has also been noted to decrease the regulation of mind wandering. In a study on the effects of cannabis on mind wandering, spontaneous mind wandering was increased [36]. This result was not surprising given that cannabis has notably caused more extreme forms of mind wandering such as hallucinations.

## Potential Underlying Biological Mechanisms for Mind Wandering

A few potential underlying biological mechanisms have been noted for mind wandering (see Table 5). They include activation of the gray matter network, the default mode network and the left superior parietal lobe.

**Table 5:** Potential underlying biological mechanisms for mind wandering (and first authors).

| Mechanisms | First Authors |
|---|---|
| Activation of the gray matter network | Chang |
| Default mode network activation | Kucyi |
| Left superior parietal lobe activation | Wong |

In a mechanism study entitled "Gray and white matter networks predict mindfulness and mind wandering traits", **activation of the gray matter network** and subcortical regions (caudate and thalamus) predicted mindfulness and deliberate mind wandering and negatively influenced spontaneous mind wandering (N=76) [37]. The directionality implied by the title of this paper is that network activity led to mindfulness and mind wandering traits. The directionality of these cross-sectional studies is questionable. It could have as easily been in the opposite direction with mindfulness and deliberate mind wandering activating those subcortical regions.

In another mechanism study entitled "Individual variability in neural representations of mind wandering", a reliable association was noted between mind wandering and **default mode network activation [38]**. Individual differences were noted on the timing of the activation of the networks.

In still another mechanism study, the **left superior parietal lobe** mediated the link between a spontaneous mind wandering tendency and task switching performance (N= 173) [39]. This precise location of the activation in the left superior parietal lobe may relate to the limited focus of the fMRI data collected in this study.

## Methodological Limitations of this Literature

Several methodological limitations can be noted for this literature on mind wandering. They relate to study participants, selection of variables, and cross-sectional data.

The participants in most of these studies were children, adolescents, and university students which limits the generalizability of the findings to adult samples.

Several of the mediators appear to have been arbitrarily selected. Some of the variables seemed illogical for example, self-compassion and grit, and the theoretical rationale for their selection as mediators was not presented.

Directionality could not be reliably determined in these cross-sectional studies. Some of the variables could be considered both predictors and effects.

No studies could be found on mind wandering when alone versus with others. In addition, no comparisons appeared for different age groups, different time of day and different type of task. Diary recordings could provide information on these variables. The diary recordings could be content analyzed for the types of content found in mind wandering. Despite these methodological limitations, this literature can help inform future research on mind wandering.

## References


1. Shimoni H, Axelrod V. Elucidating the difference between mind-wandering and day-dreaming terms. Sci Rep. 2024; 14: 11598.
2. Schubert AL, Frischkorn GT, Sadus K, et al. The brief mind wandering three-factor scale (BMW-3). Behav Res Methods. 2024; 56: 8720-8744.
3. Tang S, Jiang C, Li Z. Detecting mind wandering via EEG and facial video features. Behav Res Methods. 2025; 57: 310.
4. Racy F, Morin A. Relationships between Self-Talk, Inner Speech, Mind Wandering, Mindfulness, Self-Concept Clarity, and Self-Regulation in University Students. Behav Sci. 2024; 14: 55.

5. Du Q, Tolmie A, Gordon R. Mind-wandering in China and the UK: evidence of cross-cultural consistency. Front Psychol. 2026; 17: 1715597.
6. Teague E, McCormack T, Graham AJ. Low mood, worry and mind wandering in children. Br J Dev Psychol. 2025; 43: 889-907.
7. Cherry J, McCormack T, Graham AJ. Listen up, kids! How mind wandering affects immediate and delayed memory in children. Mem Cognit. 2024; 52: 909-925.
8. Aschenbrenner AJ, Welhaf MS, Hassenstab JJ, et al. Antecedents of mind wandering states in healthy aging and mild cognitive impairment. Neuropsychology. 2024; 38: 430-442.
9. Welhaf MS, Astacio MA, Banks JB. Further unpacking individual differences in mind wandering: The role of emotional valence and awareness. Conscious Cogn. 2024; 122: 103697.
10. Cantarella G, Umiltà AM, Stendardi D, et al. Face the future! How the self and time shape mind-wandering. Cortex. 2025; 193: 105-116.
11. Gao W, Luo L, Yang C, et al. Longitudinal Associations between Metacognition and Spontaneous and Deliberate Mind Wandering During Early Adolescence. J Youth Adolesc. 2024; 53: 1820-1831.
12. Rodriguez-Boerwinkle RM, Welhaf MS, Smeekens BA, et al. Variation in Divergent Thinking, Executive-Control Abilities, and Mind-Wandering Measured In and Out of the Laboratory. Creat Res J. 2025; 37: 604-638.
13. Feng Q, Weng L, Geng L, et al. How Freely Moving Mind Wandering Relates to Creativity: Behavioral and Neural Evidence. Brain Sci. 2024; 14: 1122.
14. Ziane C, Wardak C, Ben Hamed S. Mind wandering and its relationship with sustained attention and executive functions in preschoolers. J Exp Child Psychol. 2026; 262: 106372.
15. Zanesco AP, Denkova E, Barry J, et al. Mind wandering is associated with worsening attentional vigilance. J Exp Psychol Hum Percept Perform. 2024; 50: 1049-1066.
16. Cotton K, Sandry J, Ricker TJ. The Effects of Mind-Wandering, Cognitive Load, and Task Engagement on Working Memory Performance in Remote Online Experiments. Exp Psychol. 2024; 70: 271-84.
17. Xu EP, Li J, Zapetis SL, et al. The mind wanders to dark places: Mind-wandering catalyzes rumination in the context of negative affect and impulsivity. Emotion. 2024; 24: 1826-1836.
18. Siddiqi S, Sharma SN. The Effect of Spontaneous and Deliberate Mind Wandering on Decision-Making Styles. J Psychol. 2026; 11: 1-20.
19. Langeslag SJE, Philippi CL. Mind wandering about the beloved: self-reported distraction, task performance, and enjoyment. Cogn Emot. 2025; 39: 920-927.
20. Safati AB, Carr TH, Lowe CJ, et al. Mind wandering on command. Front Psychol. 2024; 15: 1448226.
21. Li H, Hills T. Time, valence, and imagination: a comparative study of thoughts in restricted and unrestricted mind wandering. Psychol Res. 2024; 88: 1510-1521.
22. Li Y, Zhang Z, Cui L, et al. The role of mind wandering and anxiety in the association between internet addiction and hyperactivity-impulsivity: a serial mediation model. BMC Psychol. 2025; 13: 345.
23. Gaynor N, Fitzgerald L. Mind-Wandering and Its Relationship with Psychological Wellbeing and Obsessive-Compulsive Symptomatology in the Context of Covid-19. Psychol Rep. 2025; 128: 3307-3334.
24. Liu S, Li R, Wegner L, et al. High-mind wandering correlates with high risk for problematic alcohol use in China and Germany. Eur Arch Psychiatry Clin Neurosci. 2024; 274: 335-341.
25. Carciofo R, Cheung RYM. Eveningness and Procrastination: An Exploration of Relationships with Mind Wandering, Sleep Quality, Self-Control, and Depression. Eur J Investig Health Psychol Educ. 2025; 15: 79.
26. Welhaf MS, Balota DA, Morris JC, et al. Cross-sectional and longitudinal changes in mind-wandering in older adulthood. Psychol Aging. 2024; 39: 495-509.
27. Welhaf MS, Banks JB, Bugg JM. Age-Related Differences in Mind Wandering: The Role of Emotional Valence. J Gerontol B Psychol Sci Soc Sci. 2024; 79: gbad151.
28. Li J, Liu Y, Xue S, et al. Costs over benefits: mind wandering in sporting performance. Front Psychol. 2024; 15: 1347561.
29. Qian B, Liu Y, Yang X, et al. The Effects of Posture on Mind Wandering. Exp Psychol. 2024; 71: 154-163.
30. Pérez Ariza JF, Omigie D. Curiosity and Mind Wandering During Music Listening Are Negatively Correlated. Behav Sci. 2025; 15: 393.
31. Welhaf MS, Bugg JM. Positively framing mind wandering does not increase mind wandering in older adults. Psychol Res. 2024; 88: 1499-1509.
32. Umeda A, Ohtsuki T. Self-compassion and mindfulness in relation to mind wandering: indirect associations mediated by negative affect. Front Psychol. 2025; 16: 1687442.
33. Simor P, Polner B, Báthori N, et al. Reduced REM and N2 sleep, and lower dream intensity predict increased mind-wandering. Sleep. 2024; 47: zsad297.
34. Cheung RYM, Djekou L. Self-compassion and grit mediated the relation between mindfulness and mind wandering based on cross-sectional survey data. Sci Rep. 2024; 14: 9090.
35. Riby LM, Marr L, Barron-Millar L, et al. Elevated Blink Rates Predict Mind Wandering: Dopaminergic Insights into Attention and Task Focus. J Integr Neurosci. 2025; 24: 26508.
36. Safati AB, Alkheder WA, Lowe CJ, et al. The effects of cannabis on mind-wandering. Heliyon. 2025; 11: e42911.
37. Chang M, Sorella S, Crescentini C, et al. Gray and White Matter Networks Predict Mindfulness and Mind Wandering Traits: A Data Fusion Machine Learning Approach. Brain Sci. 2025; 15: 953.

38. Kucyi A, Anderson N, Bounyarith T, et al. Individual variability in neural representations of mind-wandering. Netw Neurosci. 2024; 8: 808-836.

39. Wong YS, Yu J. Left superior parietal lobe mediates the link between spontaneous mind-wandering tendency and task-switching performance. Biol Psychol. 2024; 185: 108726.