

Research Paper

Exploring Mind Wandering: A Serial Mediation Study Using Anxiety and Personality Traits

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ABSTRACT

Mind Wandering refers to task-unrelated thoughts, task images and stimulus independent thoughts and is found to be usually associated with distraction and experience of stress. The current study focuses on examining the factor structure pertaining to mind wandering and its relationship with anxiety and personality traits using a sample of 180 individuals (M=53, F=127). Through serial mediation analysis, a significant direct relationship between neuroticism, conscientiousness and agreeableness and mind wandering was observed. Furthermore, a significant total indirect effect of state and trait anxiety on the relationship between neuroticism, agreeableness and conscientiousness with mind wandering was also obtained thereby, indicating towards a partial mediation of trait anxiety and state anxiety in the relationship between the personality traits of neuroticism, conscientiousness and agreeableness with mind wandering. This study is an attempt to understand the interplay of personality and mind wandering and the influence of anxiety upon this relationship, thereby contribute towards potential therapeutic practices.

Keywords: *Mind Wandering, Anxiety, Personality, Factor Analysis, Mediation Analysis*

Mind wandering is “a condition in which thoughts do not remain focused on the task at hand but range widely and spontaneously across other topics. It tends to occur during tasks that do not require sustained attention” (American Psychological Association, n.d). Such loss of contact with the current situation is known as mind wandering. (Schooler et al., 2011). As humans, we mind wander a lot. It occurs more when people are in a resting state or doing less demanding work (Cantone et al., 2021).

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Many studies have established that the default network (DN), frontal lobe, parietal lobe and especially the medial temporal lobe (MTL) is activated as a primary network when a person's mind is wandering. The default network comprises the hippocampus, parahippocampal cortex, retrosplenial cortex, ventromedial prefrontal cortex, and the posterior inferior parietal lobe. Although the default network i.e. medial temporal lobe has been connected to mind wandering as a whole, the precise roles of its individual nodes are yet to be determined. Most probably the medial temporal lobe can be assumed to be associated with mind wandering related to the past events (Faber & Mills, 2018; Cantone et al., 2021). In recent studies, they observed that the tendency to mind wanders is associated with grey matter integrity and the left parahippocampal gyrus in the left hippocampus (O'Callaghan et al., 2019). Prospection, semantic and episodic memories, introspection, and fantasies are also said to be common sources of mind wandering.

In a study conducted research on daydreaming styles and the big five personality dimensions on a sample of 106 college students, wherein they attempted to find an association between personalities, emotionality and daydreaming. It was observed that people high in neuroticism will have a proclivity towards psychological suffering in their daily life, hence they may experience more mind wandering, negative affect and failure in tasks. People high in openness to experience have a tendency of introspection, extensive information, elaboration and intense thought process. Hence, they mind wander a lot about the positive experiences and future (Zhiyan & Singer, 1997). A research on the individual differences in the personality trait of neuroticism, mind wandering and executive control of 213 undergraduate students (mean age= 19.40, SD = 2.32). They have done a structural equation modeling that revealed two distinct sources of mind-wandering. It was found that people who are high in neuroticism have shown less performance on executive attention and have experienced mind wandering frequently. The extant literature claims some people to naturally experience more mind wandering, especially those who have many personal concerns, consequently leading to degeneration in cognitive functions and tendency towards committing errors in tasks. A shift in focus due to mind wandering may be intentional, may result from an overburdened cognitive system, and might happen when engaged in a familiar, monotonous, automatic, or low engagement task (Carriere, Seli & Smilek, 2013). Intentional mind wandering has been described as purposely allowing thoughts to drift and disengage from the task at hand, analogous to daydreaming (Carriere, Seli & Smilek, 2013). The majority of the literature on mind wandering presents it as a transitional off-focus state, typically considered to be the opposite of focused attention. Therefore, to derive a singular definition of a phenomenon of such complexity as mind-wandering which represents various states of consciousness and manifests in multiple ways (Mittner, et al. 2016) is not an ordinary feat. Consequently, the comprehensive measurement of mind-wandering is difficult. Thus, a pertinent limitation of previous research includes the reduction of mind wandering to a singular process, resulting in the investigation of only one aspect and often ignoring the other aspects of the complex construct of mind wandering.

Another study reveals that individual differences in brain circuits that regulate self-generated thoughts, executive control, and emotion regulation interact in such a way that some individuals are more prone to entertaining thoughts that are irrelevant to the current context. It was concluded that neurotic individuals tend to report more mind wandering during cognitive tasks, lower working memory capacity, and poorer attention control (Robison, Gath & Unsworth, 2017). A 2021 study conducted on a population of Chinese students (N = 261; mean age = 20.21; SD = 1.95) studying spontaneous and deliberate mind wandering and its association with personality, affect, mindfulness and life satisfaction. It was found that

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Self-discipline facet of conscientiousness negatively correlated with both spontaneous and deliberate mind wandering. Spontaneous mind wandering also had significant negative correlations with agreeableness, and extraversion but a positive correlation with neuroticism. Whereas, deliberate mind wandering was found to be positively correlated with the trait of openness to experience. Hence, they concluded that agreeableness and openness to experience to be critically associated with mind wandering (Carciofo & Jiang, 2021).

A 2019 study conducted on female college students with the aim to investigate whether unintentional mind wandering plays a mediating role in the relationship between anxiety and depression found unintentional mind wandering to be the causal factor of anxiety and depression (Ghannad et al., 2019). In another study where the researcher created and validated the mind wandering questionnaire on physical education (PE) students through structural equation modeling also found that mind-wandering acted as a predictor of anxiety in high school students. The existing idea that increases in environmental stress due to increase in mind wandering leads to distraction from task in hand, poor performance and affect personal well-being do pose a threat. Similarly, the PE students experienced negative thoughts linked to emotions such as helplessness, shame or frustration, self-doubt about one's performance, body image, etc. This led to an increase in their cognitive anxiety and mind-wandering, therefore a decline in concentration and attention ultimately leading to the development of maladaptive behaviours (Trigueros et al., 2019).

Mind wandering is experienced by everyone in their daily life making everyday activities susceptible to its effects; highly prevalent in the educational context, while attending lectures and test taking (Smallwood & Schooler, 2006). However, it may be advantageous or disadvantageous depending on the individual's behaviour, ideas, feelings, and environment as individual differences exist in mind wandering (Ibaceta & Madrid, 2021). Personality influences the self-regulation of our attention and the content of our thoughts, how we process the information gathered from the task we perform, when people feel worried, what they are preoccupied with, deep thinking and fretting, which ultimately takes them away from the current moment. Therefore, the current research focuses on the individual differences in mind wandering, as well as the effects of personality and anxiety on the Indian population. The study is justified because there are few studies in the given population. The study was carried out to address the gap in the current literature, the following hypotheses were formulated:

H1: There will be a significant relationship between personality, anxiety and mind wandering.

H2: State and Trait anxiety will mediate the relationship between personality traits and mind wandering.

METHODOLOGY

Participants

The sample of the study was taken from the two cities in India. 180 individuals participated in the study, all of whom were above the age of 18 years (Mean Age=25.1. SD= 10.21). The sample consisted of 127 women (Mean Age=23.4, SD= 7.3) and 53 Men (Mean Age= 29.1, SD= 14.51). Convenient sampling technique was used in collecting data. Table 1 demonstrates the demographic data pertaining to the sample.

Measures

- **Mind Wandering Questionnaire:** The Mind Wandering Questionnaire developed by Mrazek and colleagues in 2013 consists of 5 items. The Cronbach's alpha value

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of the questionnaire is 0.85 which indicates good internal consistency among the items. The items in the questionnaires also have good inter item correlation (mean=0.540). The MWQ is a face-valid tool for rapidly assessing trait levels of mind-wandering. It is a 6 point Likert scale. The responses for the items range from 1 (almost never) to 6 (almost always). There is no reverse scoring (Mrazek et al., 2013).

- **Personality:** For the measurement of personality traits, NEO-Five Factor Inventory was utilised. The personality is measured by NEO FFI which was developed by McCrae and Costa (1992) that consists of 60 items used to measure the personality of the participants. It consists of five dimensions, i.e., openness to experience, conscientiousness, neuroticism, extraversion, and agreeableness. Each of these dimensions has 12 items. The Cronbach's alpha value of Neuroticism, Extraversion, Openness to experience, Agreeableness and Conscientiousness are .93, .90, .88, .93, and .93 respectively which indicates that the scale has a good internal consistency. The scale response used a five-point Likert scale ranging from "strongly agree" to "strongly disagree".
- **Anxiety:** For the measurement of anxiety, State and Trait Anxiety Scale was used. The State Trait anxiety inventory is used to measure the anxiety of the participants. It consists of 40 items with two separate self-report forms. There are twenty items in state anxiety (form Y-1) and twenty items in trait anxiety (Form Y-2). The scale has good test-retest reliability, internal consistency (Spielberger et al., 2010). The scale's response is marked as 1 to 4 i.e. "not at all" to "very so much" in the form Y-1 and "almost never" to "almost always" in the form Y-2.

Procedure

Total of 180 participants was collected using snowball sampling method. The data was collected through paper-pencil test and online survey, where instructions were common. For online survey, Google Form link was circulated through emails, WhatsApp, Facebook. In both the formats, detailed description of purpose of the study and instructions for participation was given. The participants were instructed to read the questions carefully and choose the option which deemed appropriate and it is completely voluntary. They were informed that the information provided will be kept confidential and will only be utilized for the research purpose. They can withdraw from the study anytime they want. After their written informed consent was obtained, detailed socio-demographic information was acquired, consisting of questions pertaining to their age, gender, education, marital and socio-economic status. Mind wandering was assessed using Mind Wandering Questionnaire (MWQ), personality was assessed using NEO-Five Factor Inventory and anxiety was assessed through State and Trait Anxiety Scale. The duration of the assessment was 15-20 minutes. After the data collection, participants were thanked for their patience and cooperation, and later statistical analysis was done.

Statistical analysis

The data collected have been analysed by using SPSS version 24 (Arbuckle, 2011). The choice of the statistical technique was guided by the objectives of the present study. Descriptive statistics, Correlation analysis, Regression analysis and Serial mediation analysis were used for statistical analysis.

RESULTS

In this study, we attempted to explore the association between mind wandering, personality and anxiety. We investigated the interplay of state and trait anxiety with the relationship of

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personality traits and mind wandering. Table 1 demonstrates the descriptive statistics regarding the variables under study.

Table 1 Mean and Standard deviation of all the variables

Dimension	Mean (N=180)	SD
State anxiety	41.42	10.85
Trait anxiety	43.5	10.75
Neuroticism	22.9	6.34
Extraversion	27.18	4.39
Openness	25.08	4.63
Agreeableness	26.3	4.9
Conscientiousness	29.4	5.81
Mind-wandering	33.2	11.15

Table 1 shows the mean and standard deviation of the state anxiety (M=41.52; SD= 10.85), trait anxiety (M=43.5; SD=10.75), neuroticism (M=22.9; SD=6.34), extraversion (M=27.18; SD=4.39), openness to experience (M=25.08; SD=4.63), agreeableness (M=26.3; SD= 4.9), conscientiousness (M=29.4; SD=5.81), mind wandering questionnaire (M=33.2; SD=11.15) and mind excessively wandering scale (M= 45.10 and SD=11.7).

Table 2 Inter-Correlations among Mind-wandering, Anxiety and Personality traits

Parameters	SA	TA	Neur	Extra	Op	Ag	Cons	MW
SA	1							
TA	.880**	1						
Neur	.528**	.630**	1					
Extra	-.324**	-.353**	-.181*	1				
Op	0.107	0.004	-0.051	-0.123	1			
Ag	-.247**	-.319**	-.341**	0.143	-0.027	1		
Cons	-.401**	-.432**	-.377**	.479**	0.057	.177*	1	
MW	.377**	.407**	.368**	-.242**	0.010	-.293**	-.378**	1

** $p < 0.01$; * $p < 0.05$ (2-tailed); SA- state anxiety; TA- trait anxiety; Neur- Neuroticism; Extra-Extraversion; Op-Openness to experience; Ag-Agreeableness; Cons-Conscientious; MW-Mind Wandering Questionnaire

Table 2 shows inter-correlations among mind-wandering, anxiety and personality traits. Pearson's Product Moment Correlation was calculated to evaluate the association between state anxiety, trait anxiety, neuroticism, extraversion, openness to experience, agreeableness, conscientiousness and Mind Wandering questionnaire (MW). Significantly positive correlation was observed between neuroticism and mind wandering ($r=0.368$). On other hand, significant negative relationships were observed between extraversion and mind wandering ($r=-0.242$), agreeableness and mind wandering ($r=-0.293$) and conscientiousness and mind wandering ($r=-0.378$). No relationship was found between openness to experience and mind wandering.

A significant positive relationship has been found between state anxiety and mind-wandering ($r= 0.377$) and trait anxiety and mind wandering ($r= 0.407$).

Personality and Mind Wandering

To explore the impact of the five personality traits in the mind wandering, stepwise linear regression was conducted to evaluate the prediction of mind wandering from the traits of neuroticism, extraversion, openness to experience, agreeableness and conscientiousness.

Table 3 A summary of the stepwise regression analysis of Personality traits on Mind Wandering

Model	Variables entered	R	R square	Adjusted R square	F	Sig
1	Conscientiousness	0.378	0.143	0.138	29.666	0.000
2	Conscientiousness Neuroticism	0.450	0.202	0.193	13.333	0.000
3	Conscientiousness Neuroticism Agreeableness	0.478	0.229	0.216	6.140	0.014

Dependent variable- Mind wandering

Table 4 Coefficients of the stepwise regression analysis of Personality traits on Mind Wandering

Model	B	Std. Error	Beta	t	Sig.	95.0% Confidence Interval for B		
						Lower Bound	Upper Bound	
1	(Constant)	23.958	1.728		13.862	0.000	20.547	27.368
	Conscientiousness	-0.314	0.058	-0.378	-5.447	0.000	-0.427	-0.200
2	(Constant)	16.953	2.556		6.633	0.000	11.909	21.997
	Conscientiousness	-0.231	0.060	-0.279	-3.845	0.000	-0.350	-0.113
	Neuroticism	0.200	0.055	0.263	3.624	0.000	0.091	0.309
3	(Constant)	22.208	3.293		6.743	0.000	15.709	28.708
	Conscientiousness	-0.223	0.059	-0.269	-3.756	0.000	-0.341	-0.106
	Neuroticism	0.157	0.057	0.207	2.759	0.006	0.045	0.270
	Agreeableness	-0.172	0.069	-0.175	-2.478	0.014	-0.308	-0.035

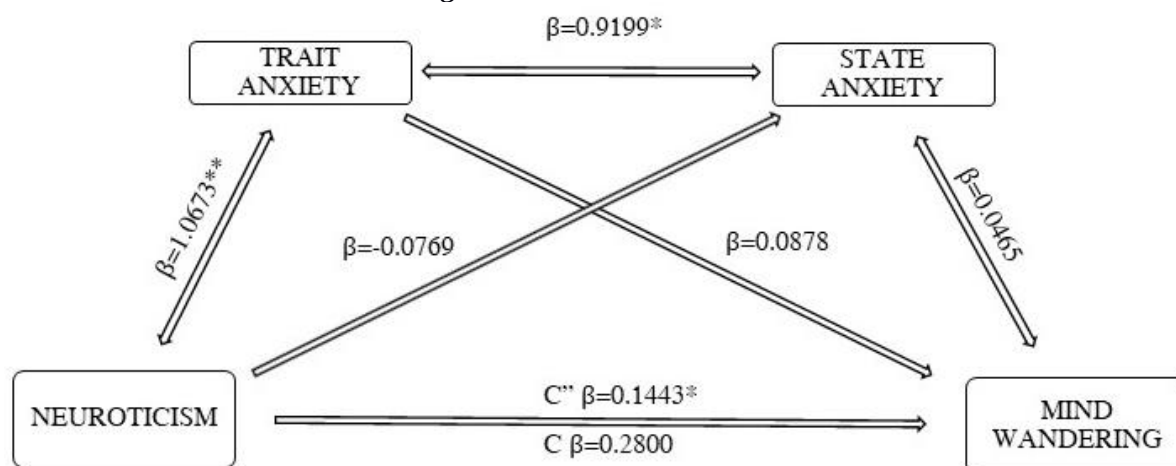
Dependent variable- Mind wandering

Tables 3 and 4 shows that when the independent variables were entered in the regression model, with regard to mind wandering, conscientiousness explained 14.3% of a variance with $R= 0.378$, $R^2= 0.143$, $\beta= -0.378$ and $F= 29.666$, $p< 0.001$. A significant increase of 6% was observed in R^2 when the variable of neuroticism was entered along with conscientiousness. The new model accounted for 20.2% variance with $R= 0.45$, $R^2= 0.202$, $\beta = 0.263$ and $F= 13.333$, $p<0.001$. A significant increase of 2% was observed in R^2 when these variables (neuroticism and conscientiousness) were entered along with agreeableness accounting for 22.9% variance with $R= 0.478$, $R^2= 0.229$, $\beta= -0.175$ and $F= 6.140$, $p<0.001$. Hence the result reveals that 22.9% of variance within mind wandering can be explained by personality factors. Extraversion and openness to experience were not entered in the analysis, for they did not contribute towards predicting mind wandering. Hence it is concluded that neuroticism, conscientiousness and agreeableness can significantly explain mind wandering.

Personality and Mind Wandering Through State and Trait Anxiety

To assess the effect of various personality traits on mind wandering through trait anxiety and state anxiety, a serial- multiple mediation analysis of model 6 was performed using the PROCESS V4, Hayes’s process in SPSS 24 version.

Figure 1 Serial mediation of trait anxiety and state anxiety on the relationship between Neuroticism and Mind Wandering



* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Figure 1 shows serial mediation of trait anxiety and state anxiety on the relationship between neuroticism and mind wandering. Neuroticism is the predictor variable and mind wandering is the outcome variable. The first mediator is the trait anxiety while, the second mediator is the state anxiety. The direct effect of neuroticism on mind wandering ($\beta = .1443$, $SE = .0667$, $t = 2.1625$, $p < 0.05$) is found to be at a significant level. In addition, the effect of neuroticism on trait anxiety ($\beta = 1.0673$, $SE = .0986$, $t = 10.8242$, $p < 0.001$) is at a significant level but of neuroticism on state anxiety ($\beta = -.0769$, $SE = .0785$, $t = -0.9796$, $p > 0.001$) is not found to be at significant level. The direct effect of trait anxiety on state anxiety ($\beta = .9199$, $SE = .0463$, $t = 19.8496$, $p < .001$) was found to be significant but the direct effects of trait anxiety on mind wandering ($\beta = .0878$, $SE = .0705$, $t = 1.2449$, $p > .01$) and state anxiety on mind wandering ($\beta = .0465$, $SE = .0637$, $t = 0.7297$, $p > 0.01$) were not found to be at a significant level. The total effect of neuroticism on mind wandering ($\beta = .2800$; $SE = 0.0530$; $p < 0.001$) were found to be significant.

Table 5 Completely standardised indirect effect of neuroticism on mind wandering through trait anxiety and state anxiety

Effects Key	Point of coefficient		Bootstrap 95% confidence Interval	
	Effect	SE	lower	upper
Neur->TraitAnx->MW	.1232	.0973	-.0703	.3119
Neur ->StateAnx -> MW	-.0047	.0126	-.0350	.0183
Neur ->TraitAnx ->StateAnx-> TMW	.0600	.0882	-.1169	.2354

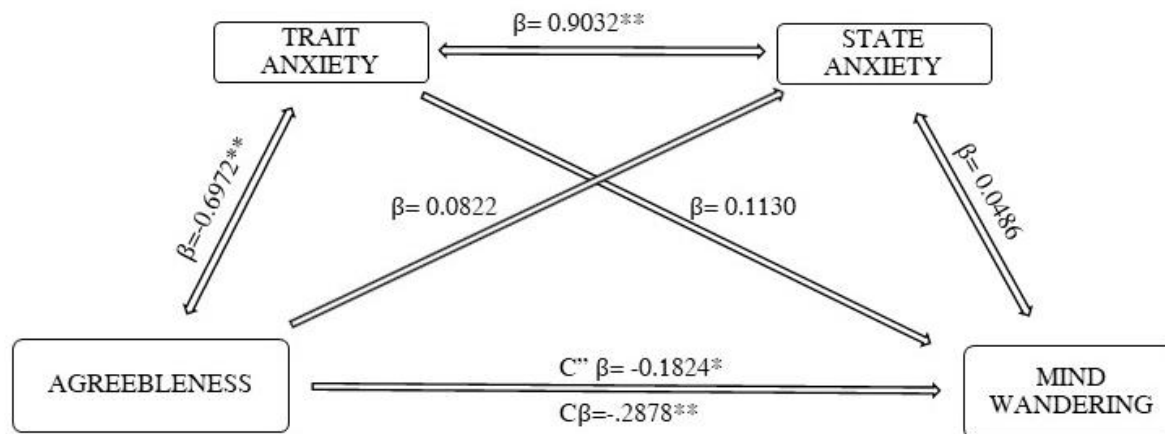
Note: $N = 180$, $k = 5000$, * $p < .05$, ** $p < .01$, *** $p < .001$. Neur-Neuroticism, TraitAnx- Trait anxiety, StateAnx- State anxiety, MW- Mind wandering

Table 5 shows indirect effect of neuroticism on mind wandering through trait anxiety and state anxiety. Statistical significance of the indirect effects within the tested model in the current research was examined over 5,000 bootstrap samples. Estimates were taken at a 95% confidence interval. As mentioned in the table, the indirect effect of neuroticism through trait anxiety and state anxiety on mind wandering was found to be statistically not-significant (effect = 0.0600; 95% CI [-.1169, .2354]). Within the tested model, when considering the mediating variables separately in relation to the mediating indirect effects of

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neuroticism on mind wandering, single mediation of trait anxiety (effect = .2800; 95% CI [.1754, .3847]) and single mediation of state anxiety on mind wandering was found to be statistically non-significant (effect=-.0047; 95% CI [-.1169, .2354]). The direct effect (effect= 0.1443; 95% CI [0.0126, 0.2759]) was found to be significant whereas the total indirect effect (effect = 0.1358; 95% CI [0.0390, 0.2343]) was found to be not significant. However, the total indirect effect (effect=.1358; 95% CI [.0420, .2325]) was found to be significant, indicating that partial mediation is found to exist.

Figure 2 Serial mediation of trait anxiety and state anxiety on the relationship between Agreeableness and Mind Wandering



* $p < 0.05$; ** $p < 0.01$

Figure 2 shows serial mediation of trait anxiety and state anxiety on the relationship between agreeableness and mind wandering. Here, agreeableness is the predictor variable and mind wandering is the outcome variable, the first mediator is the trait anxiety and the second mediator is the state anxiety. The direct effect of the agreeableness on mind wandering ($\beta = -.1824$, $SE = .0701$, $t = -2.6014$, $p < 0.05$), agreeableness on trait anxiety ($\beta = -.6972$, $SE = .1553$, $t = -4.4894$, $p < 0.001$) and the effect of trait anxiety on state anxiety ($\beta = .9032$, $SE = .0380$, $t = 23.7899$, $p < .001$) were found to be at a significant level. The direct effect of agreeableness on state anxiety is at a non-significant level ($\beta = .0822$, $SE = .0830$, $t = .9902$, $p > 0.001$). The effect of trait anxiety on mind wandering ($\beta = -.1824$, $SE = .0704$, $t = -2.6014$, $p < .05$) is significant whereas the effect of state anxiety on mind wandering ($\beta = .0486$, $SE = .0633$, $t = .7672$, $p > 0.05$) are non-significant. The total effect of the agreeableness on mind wandering C' ($\beta = -.2878$; $SE = 0.0704$; $p < 0.001$) was found to be significant.

Table 6 The indirect effect of agreeableness on mind wandering through trait anxiety and state anxiety.

Effect key	Point of coefficient		Bootstrap 95% confidence Interval	
	Effect	SE	lower	upper
Agree->TrAnx->StAnx-> MW	-.0312	.0469	-.1387	.0522
Agree->TrAnx-> MW	-.0802	.0496	-.1803	.0197
Agree->StAnx-> MW	.0041	.0101	-.0113	.0301

Note: $N = 180$, $k = 5000$, * $p < .05$, ** $p < .01$, *** $p < .001$, Agree- agreeableness, TrAnx- trait anxiety, StAnx- state anxiety, MW- mind wandering

Table 6 shows the indirect effect of agreeableness on mind wandering through trait anxiety and state anxiety. Statistical significance of the indirect effects within the tested model in the

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current research was examined over 5,000 bootstrap samples. Estimates were taken at a 95% confidence interval. As seen in Table 10.2, the indirect effect of agreeableness through trait anxiety and state anxiety on mind wandering is statistically non-significant (effect = $-.0312$; 95% CI $[-.1387, .0522]$). Within the tested model, when considering the mediating variables separately in relation to the mediating indirect effects of agreeableness on mind wandering, single mediation of trait anxiety (effect= $-.0802$; 95%; CI $[-.1803, .0197]$) and single mediation of state anxiety (effect= $.0041$; 95% CI $[-.0113, .0301]$) were found to be statistically non-significant. Direct effect (effect= $-.1824$; 95% CI $[-0.3208, -0.0440]$) was found to be significant whereas the total indirect effect (effect= $-.1073$; 95% CI $[-0.1862, -0.0437]$) were found significant, indicating that partial mediation is found to exist.

Figure 3 Serial mediation of trait anxiety and state anxiety on the relationship between Conscientiousness and Mind Wandering and Mind Wandering

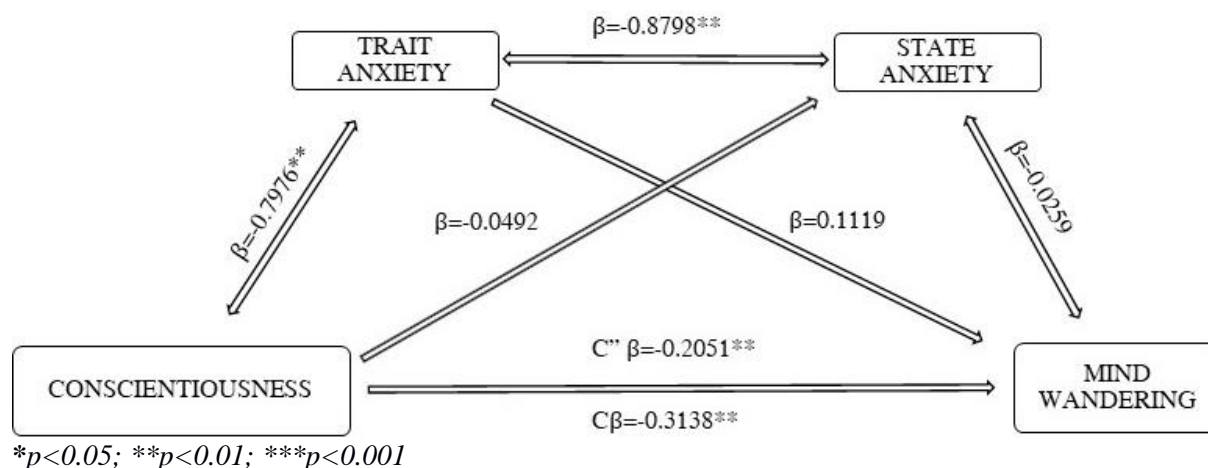


Figure 3 shows serial mediation of trait anxiety and state anxiety on the relationship between conscientiousness and mind wandering and mind wandering. Here, conscientiousness is the predictor variable and mind wandering is the outcome variable and the first mediator is the trait anxiety and the second mediator is the state anxiety. The direct effect of conscientiousness on both mind wandering ($\beta = -.2051$, SE= $.0615$, $t = -5.4467$, $p < 0.001$) and trait anxiety ($\beta = -.7976$, SE= $.1250$, $t = -6.3831$, $p < 0.001$) is at a significant level except on the state anxiety ($\beta = -.0492$, SE= $.0738$, $t = -.6666$, $p > .001$) where it was found to be at an insignificant level. The direct effect of trait anxiety on state anxiety ($\beta = .8798$, SE= $.0400$, $t = 22.0207$, $p < 0.001$) is at a significant level. The direct effect of trait anxiety ($\beta = .1119$, SE= $.0642$, $t = 1.7417$, $p > .05$) and state anxiety on mind wandering ($\beta = .0259$, SE= $.0625$, $t = .4149$, $p > 0.001$) were found to be non-significant. The total effect of conscientiousness on mind wandering C' ($\beta = -.3138$; SE= 0.0576 ; $p < 0.001$) was found to be significant.

Table 7 The indirect effect of conscientiousness on mind wandering through trait anxiety and state anxiety.

Effect key	Point of coefficient		Bootstrap 95% confidence Interval	
	Effect	SE	lower	upper
Consci->TrAnx->StAnx -> MW	-.0219	.0577	-.1340	.0909
Consci->TrAnx -> MW	-.1075	.0654	-.2432	-.0129
Consci->StAnx -> MW	-.0015	.0085	-.0214	.0157

Note: $N=180$, $k=5000$, * $p < .05$, ** $p < .01$, *** $p < .001$, Consci- conscientiousness, TrAnx- trait anxiety, StAnx- state anxiety, MW- mind wandering

Table 7 shows the indirect effect of conscientiousness on mind wandering through trait anxiety and state anxiety. Statistical significance of the indirect effects within the tested model in the current research was examined over 5,000 bootstrap samples. Estimates were taken at a 95% confidence interval. As seen in Table 10.3, the indirect effect of conscientiousness through trait anxiety and state anxiety on mind wandering is statistically non-significant (effect= -.0219; 95% CI [-.1340, .0909]). Within the tested model, while considering the mediating variables separately in relation to the mediating indirect effects of conscientiousness on mind wandering, single mediation of trait anxiety (effect = -.1075; 95%; CI [-.2432, -.0129]) and single mediation of state anxiety (effect= -.0015; 95% CI [-.0214, .0157]) were found to be statistically non-significant. Both the direct effect (effect= -0.2051; 95% CI [-0.3264, -0.0838]) and the total indirect effect (effect= -0.1309; 95% CI [-0.1784, -0.0473]) were found to be significant.

DISCUSSION

Mind wandering has been experienced by everyone in their daily life. Many everyday activities may be pregnable to the effects of mind wandering. It is mostly happening in the educational context, attending to lectures and even test taking (Smallwood & Schooler, 2015). However, mind wandering can have a good impact on daily life, depending on the individual's behaviour, ideas, feelings, and environment. The current research focuses on the individual differences in mind wandering, as well as the effects of personality and anxiety on the Indian population.

The correlation showing significant positive relationship between neuroticism and mind wandering suggesting that people who are high in neuroticism will have a proclivity towards psychological suffering in their daily life, showing poor performance in executive attention as they tend to ruminate about negative experiences and failure (Zhiyan & Singer, 1997; Robinson, Gath & Unsworth, 2016). The negative relationship of mind wandering with other personality traits like extraversion, agreeableness and conscientiousness draws support from previous study of Carciofo et al., (2016) demonstrating that individuals low on extraversion, agreeableness and conscientiousness trait may tend to experience higher mind wandering. However, Ibaceta & Madrid (2021) denied this relationship. Juan (2018) too found no relationship between openness to experience and mind wandering.

Likewise, the previous studies also show that the people with high mind wandering tend to be more anxious than those who experience lesser mind wandering. Hence, the current finding is in tandem with the extant literature showing that participants induced with more negative mood were prone to experiencing mind wandering (Smallwood et al., 2006a, b, 2009) and when the mind wandering is especially about negative events, it tends toward anxiety, subsequently, a positive relationship was found between higher levels of anxiety and mind wandering (Deng et al., 2014; Trigueros et al., 2019). Therefore, Hypothesis I stand accepted for all anxiety traits and partially accepted for personality traits, i.e. positive relationship exists only between mind wandering and neuroticism, and negative relationship with other traits (extraversion, agreeableness and conscientiousness).

In the current study, the result of stepwise regression and mediation analysis determines that trait anxiety and state anxiety mediate the relationship between neuroticism, agreeableness and conscientiousness, and mind wandering. The extraversion and openness did not predict mind wandering. The trait anxiety mediates the prediction of personality on mind wandering, and there is a partial mediation of both trait anxiety and state anxiety when personality predicts mind wandering. The findings suggested that with an increase in

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neuroticism, a subsequent increase in trait and state anxiety, and consequently mind wandering might be observed, while with an increase in agreeableness and conscientiousness, a subsequent decrease in trait and state anxiety and consequently mind wandering might be observed, however, several other factors may play a role in facilitating the relationship. Hence the current study reveals that there is a partial mediation of state anxiety and trait anxiety in case of neuroticism, agreeableness and conscientiousness predicting mind wandering. Hence, Hypothesis II is partially accepted.

CONCLUSION

Mind wandering can be conceptualised as task unrelated thoughts, task unrelated images and stimulus independent thoughts in which people tend to think about random things with less awareness of their present environment (Smallwood & Schooler, 2006) thereby having both positive and negative effects on people's lives. It may help the individual with generating creative ideas but sometimes it makes the individual prone to stress and anxiety when they think about their past bitter experiences or difficulties of the upcoming future (Krakau, et al., 2020). There exists an individual difference in mind wandering as a spontaneous thought emerges in daily life (Ibaceta & Madrid, 2021) where personality and anxiety plays a major role. The current study explored the individual differences in mind wandering, especially the impact of personality and anxiety. With the use of stepwise regression and serial mediation analysis, the role of trait and state anxiety was assessed within the relationship between personality factors and mind wandering. The result of stepwise regression and mediation analysis concluded that neuroticism, agreeableness and conscientiousness explain 22.9 % of variance in mind wandering. The personality traits of extraversion and openness to experience did not predict mind wandering. There is a partial mediation of trait anxiety and state anxiety in relationship with neuroticism, conscientiousness and agreeableness in predicting mind wandering.

Implications

The current research focuses on the individual differences in mind wandering, as well as the effects of personality and anxiety. There are very few studies in this area, especially in the Indian population. Through the findings of this study, awareness could be created about the potential impact of mind wandering on our daily lives, and its interplay with the personality traits in determining our behaviour. These findings have significant implications in therapeutic setting, especially in development of therapeutic interventions for helping individuals to acknowledge within themselves the way mind wandering creates negative spirals of thoughts and behaviours and take corrective actions.

Limitations

Some of the limitations of the study are the use of a small sample of educated people. The sample consisted of individuals only from the Indian population, which may not be generalised to the larger population affiliated with different ethnicities. This research did not look into the effects of gender, age, education, or other factors on mind wandering. As the scales are quite lengthy and took ample time to administer, the participants' responses could have been affected by survey fatigue. Future research could focus on other variables that impact mind wandering. The present study used cross-sectional design to reach its goals; however, longitudinal method could be adopted to understand the lasting impact of anxiety on the relationship between personality and mind wandering.

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Conflict of Interest

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