Pakistan Journal of Psychological Research, 2024, Vol. 39, No. 3, 559-571

https://doi.org/10.33824/PJPR.2024.39.3.31

Influence of Daytime Sleepiness on Individualistic Growth and Scholastic Functioning in University Scholars

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Currently in our society, individual growth and functioning related to academic activities and tasks among university students are found to be inhibited as well as prominently disturbed. The researchers, therefore, intended to conduct the present study in order to explore every individual's personal growth and academic performance associated with daytime sleepiness in university scholars. Sample consisted of 400 university scholars from Bahauddin Zakariya University, Multan, out of which 228 were male students and 172 were female university students. Research measures used for the present study included Epworth Sleepiness Scale (Johns, 1991), Index of Personal Growth (Khalid, 2004) and Index of Academic Activities (Deeba, 1993). Results revealed that daytime sleepiness had negatively influenced individualistic growth and scholastic functioning. Furthermore, the analyses also revealed a negative correlation between daytime sleepiness and individualistic growth as well as between sleepiness during the day and academic functioning in university scholars. A positive correlation was also found between individual growth and scholastic functioning among university scholars. The study's conclusions also suggested that daytime sleepiness is not just a problem for shift workers or professionals experiencing jet lag but, it is also very concerning when related to the university students. If there is a tendency to nod off during the day, it places negative impact on their academic performance and various other aspects related to their personal development, i.e., self-esteem, ability to express their emotions, and interpersonal relationships.

Keywords. Sleepiness, scholastic functioning, individualistic growth, university scholars

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Sleepiness is like a feeling of being sleepy and tired (Sateia, 2014). It is compulsory to take note that sleepiness is mostly situation dependent, with multiple aspects of students learning, climate worsening and sluggishness (Kryger et al., 2010). Studies have shown a comparative relationship between sleep time span and an ailment risk for patients with diabetes mellitus, hypertension, stoutness, atherosclerosis, dyslipidemia and coronary vein sickness (Gottlieb et al., 2006). Moreover, sleep problems adversely affect mind-set and life satisfaction (Zee & Turek, 2006). For instance, a lecture that doesn't need active interest and might be in a dim, warm auditorium can expose fundamental tiredness. Sleepiness could be assuredly a result of sleeplessness. Different causes, such as sleep problems could be the reason of drowsiness. For catching the results of exhaustion and sleeplessness it is important to get knowledge on stereotypical sleep pattern, its duration and its impact on learning, memory, and performance (Taheri et al., 2004).

Literature was directed on sleepiness and its effect on work during working hours. As sleep is a basic biological need that is necessary. Nighttime sleeplessness prompts daytime sluggishness which has severe impact on working hours. Among these investigations, which primary drivers can for the most part make representatives nod off are time pressure, responsibility, saw control, work timetables, and occupation revolution. It will prompt a few pessimistic outcomes while representatives being sleepiness working, for instance, unfortunate data handling, more gloomy feelings, lower work execution, and expansion in mishaps. Information was gathered from proficient wellbeing laborers quantitatively. Clinical inhabitants had lower high thickness lipoprotein levels, a pattern towards higher fatty oil levels and higher monocyte count than did clinical understudies. CRP levels and other research center tests were ordinary and comparable in the two gatherings. Among the residents, 5(15%) were engaged with a mishaps during residency, and 63% and 49% detailed low proficient execution and judgment levels after the night shift, individually. It was revealed that hospital residency administration was related with higher sleepiness, harmful way of life changes, more unfortunate lipid profile, minor CBC changes, and diminished proficient execution and judgment subsequently after working the night shift. Nonetheless, no huge changes were seen in CRP. The outcomes clearly exhibit that shift work is related with higher emotional, social, and physiological drowsiness. Obviously, the impacts are because of joined circadian and homeostatic impacts. Sleepiness is especially articulated during the night shift, and may end in genuine episodes of nodding off working (Pikovsky et al., 2013).

Sleepiness can be brought on by psychological issues, drugs, unfavorable sleeping conditions, bad sleep habits, aging-related alterations in chronobiology, and sleep difficulties. Obesity in the center and rising prevalence in middle-aged and older persons are two risk factors that are shared by obstructive sleep apnea (OSA), a sleep disease, and type-II diabetes. OSA is present in 40 to 70 percent of those with type 2 diabetes (Chasens & Olshansky, 2008). Sleep quality or variability was linked to adolescents' reports of anxiety and depressive symptoms as well as their perceptions of their health. Subjective sleepiness may result in a generalized bad mood and a diminished capacity to control emotions, which could contribute to depressive and anxious thoughts and somatic symptoms (Moore et al., 2009). According to parents, 15% of children with behavior issues also had sleep issues, while 36% of children with sleep issues had behavior issues (Smedje et al., 2001). Caffeine, equivalent to 2–4 cups of coffee taken at night, can increase sleep latency on average from 6.3 to 12.1 minutes, reduce sleepiness, and improve the ability to sustain wakefulness (Walsh et al., 1990). The net effect is that caffeine increases vigilance, alertness, and decreases sleepiness. Energy drinks are becoming increasingly popular and 34% of 18–24-year-olds consume them regularly. In 2006, Americans spent more than $3.2 billion on energy drinks (O'Brien et al., 2008). The 2011 Sleep in America Poll addressed technology available in the bedroom. "Generation Years" (adults aged 19-29 years old) are heavy users of technology prior to bed: 67% use cell phones, 43% music devices, 60% computers, and 18% video games. The majority (51%) report rarely getting a good night's sleep and often wake unrefreshed. Computer use in the hour before bed is associated with less restful sleep, higher Epworth Sleepiness Scales, and drowsy driving (National Sleep Foundation, 2005). Previous literature on individualistic growth showed that one research which was conducted to see the level of individualistic growth on different themes among adults. Sample was consisted of 64% female and 28% minor in race that had average age of 41 years ranges from 25 to 73, household income between $30,000 and $40,000and college degrees in 67% of the cases. Result uncovered that how explicit subjects of self-growth in accounts of individuals' life changes related to explicit proportions of personality improvement. Second study was also conducted on adults based on attribution theory that revealed the dysfunctional cognitive functioning if one person invests in some positive incidents like goal achievements to extrinsic factors like other like helping others instead of intrinsic factors like person's own efforts. Beside this individualistic growth appreciated that mostly for attaining our goals we need other help as well. So, undeniably own individual efforts for

the attainment of goals is not comparable but it is better to accept the help of others in struggling to achieve a goal with some external help which is not harmful (Ehsan & Cranney, 2015).

Meta-analyses on academic performance have highlighted that students who participate in extracurricular activities tend to perform better academically. On the other hand, research by Alketa et al. (2005) found that depression among students stifles personal development and negatively impacts academic success. Despite these findings, the intricate relationships between sleepiness, academic performance, and personal growth remain unexplored. This study, therefore, seeks to delve into how sleepiness is related to personal development and academic performance. Personal growth in this context includes factors like motivation, self-esteem, responsibility, and the capacity to form close relationships. Academic performance is viewed through the lens of social functioning, with a positive correlation suggesting that higher personal growth enhances academic performance. Sleepiness, driven by the biological and physiological processes of the circadian rhythm, is controlled by the brain, which dictates sleep and wake cycles. Maintaining a balance between psychological and physiological functioning is essential for effective social activities. Disruptions in physiological functioning can directly impact psychological health, leading to challenges in social functioning.

Theoretical Framework

Research in cognitive psychology and neuroscience highlights the critical role of sleep in cognitive functioning, memory consolidation, and learning processes (Diekelmann & Born, 2010; Walker, 2017). Sleepiness and disruptions in sleep patterns can impair cognitive functions such as attention, memory retrieval, and decision-making abilities, which are essential for academic success and personal growth. Self-Determination Theory, developed by Deci and Ryan (1985), posits that human motivation is driven by the innate psychological needs for autonomy, competence, and relatedness. According to SDT, individuals who experience high levels of autonomy (control over their actions), competence (mastery of tasks), and relatedness (feeling connected to others) are more likely to engage actively in their academic pursuits and exhibit higher levels of personal growth. Sleepiness, as a biological factor influencing cognitive and emotional functioning, can potentially undermine these psychological needs, thus impacting motivation, self-esteem, and ultimately academic performance.

The Biopsychosocial Model, originally proposed by Engel (1977), suggests that health and well-being are determined by the complex interactions between biological, psychological, and social factors. Applied to the study of sleepiness, personal growth, and academic performance, this model underscores the interconnectedness of biological (e.g., sleep patterns), psychological (e.g., motivation, self-esteem), and social (e.g., academic environment, peer relationships) factors in shaping academic outcomes and personal development. Social Cognitive Theory, proposed by Bandura (1986), emphasizes the reciprocal interaction between personal factors (such as cognitive processes and biological factors) and environmental influences (such as social contexts and behaviors). In the context of this study, sleepiness can be viewed as a personal factor that interacts with environmental factors (e.g., academic demands, social relationships) to influence personal growth and academic performance.

Hypotheses

Based on the existing literature, theories and the research gap presented in the rationale following hypotheses were formulated.

1. Higher the sleepiness, lower will be the individualistic growth and scholastic functioning among scholars.
2. There will be a positive correlation between individualistic growth and scholastic functioning.
3. Sleepiness will have a negative impact on individualistic growth among university scholars.
4. Sleepiness will have a negative impact on Scholastic Functioning among university scholars.

Method

Research Design

It was a quantitative research focusing on correlational and regression analysis among the variables. Printed questionnaires along with inform consent was distributed among university students for the purpose of data collection.

Sample

Purposive sampling strategy based data collection for the research was included sample of 400 scholars of all departments of

Bahauddin Zakariya University, Multan. Exclusion criteria was without any specified gender distribution and socio-economic status, students above 30 years of age and other than university were excluded as per requirement of the research. Inclusion criteria were all university students from all programs and degrees BS, M.Sc. & MPhil/MS. Frequencies of demographic variables that were used for the purpose of data collection which revealed that students were from age ranges of 18-30, because 91% were from 18-24 and 8% from 25-30; 57% were males and 43% were females in the participation of research; 87% participants were from middle-class, while 11% were from high socioeconomic class, and 2% from lower class; 60% participants had CGPA 3.1-3.5, 23% had 3.6-4, 16% had 2.6-3 and only 8% had 2-2.5. Most of the participants were student of BS 77% and 19% were from M.Sc. and only 3% were from MPhil.

Instruments

Epworth Sleepiness Scale

Johns (1991) first developed this measure for adults afterwards redesigned in 1997. "Daytime sleepiness" of patients was assessed by him in his own confidential practice of sleep medication. The scale has self-administrative 8 questions with the rating on a 4-point scale (0-3), the general chances of falling asleep while engaged in eight different activities. The test is based on eight circumstances wherein subjects need to rate their inclination to become sleepy on a scale of 0, no chance of dozing, to 3, high chance of dozing. After that, add up the values of responses. Total score is based on a scale of 0 to 24. *Abnormally Sleepy:* (0-7), *Average Amount:* (8-9), *Excessively Sleepy:* (10-15), *Severe Excessively Sleepy:* (16-24). Test-retest reliability of scale is .70 which is close to the alpha reliability of original scale. A research was conducted to investigate the sleepiness in different situation which revealed that Epworth Sleepiness Scale show reliability (rho = .56, $p < 0.001$) (Johns, 1994).

Index of Personal Growth (IPG)

To measure the individual differences on individualistic growth and self-actualization of adult population scale was developed in Urdu language by Khalid in (2004). Test-retest reliability of scale is .73 in Pakistani culture. Total number of items of this scale is 35 with scoring on 5-point Likert rating scale (1 = *strongly* to *5* = *strongly agree*). Scale was constructed covering following subscales:

autonomy, self-acceptance and self-esteem, acceptance of emotions and freedom of expression of emotions, trust and responsibility in interpersonal relationships. Negative items are 3, 4, 6, 8, 10, 13, 16, 18, 20, 23, 25, 28, 30, 31 and 34. The mean score of the scale was 127.5 so the adolescents those who score above 128 would be among high self-actualizers and who score less than 127 would be among low self-actualizers.

Index of Academic Activities

Deeba (1993) developed scale in English to measure the personal goals of the students at what extent they are academic in nature. The test-retest reliability of the scale is .76 in Pakistan institutions. This scale consists of 9 questions about academic participation of students with scoring on 4-point scale (*never* to *always*). Here *'never'* (1), *'sometimes'* (2), *'frequently'* (3), *'always'* (4).

Procedure

Procedure is considered to be the basic element in each research projects. In current study the participants of the research were approached from different departments of Bahauddin Zakariya University, Multan. The researcher approached individually each participant for data collection, had taken the readiness for the cooperation in the research work. Members were briefed about the research purpose with proper guidelines with the affirmation that their data would be kept confidential and will just be utilized for research reason. Members were mentioned to peruse cautiously and answer as needs be.

Results

The purpose of conducting current research was to investigate the relationship between sleepiness, individualistic growth and scholastic functioning among scholars. Analysis was carried out by using SPSS. Psychometric properties included Cronbach's Alpha reliability to check the reliability after administration of research questionnaire in Pakistani culture. Firstly, all descriptive statistics and its psychometric properties related to sample of the research then hypothesis testing checked through statistical analysis.

Table 1: *Findings of Epworth Sleepiness Scale, Personal Growth, Academic Activities and Cronbach's Alpha Reliability (N = 400)*

Scales			Range		
	M	*SD*	Min	Max	*α*
Epworth Sleepiness Scale	12.19	5.80	0	24	.70
Academic Activities Scale	24.57	5.44	9	36	.76
Personal Growth Scale	124.65	13.60	75	166	.73

Note. SD = Standard Deviation; *M* = mean; *α* = Alpha.

Table 1 showed the Alpha values of each scale. Alpha value of Epworth Sleepiness Scale had .70, Academic Activities Scale had.76 and Personal Growth was reliable at .73. Reliabilities of Epworth Sleepiness Scale, Personal Growth Scale and Academic Activities Scale lies between high to excellent range which made the current research more reliable for Pakistani institutions.

Table 2: *Correlation among Sleepiness, Individualistic Growth and Scholastic Functioning (N= 400)*

Variables	1	2	3
1. Sleepiness	-		
2. Scholastic Functioning	-.31**	-	
3. Individualistic Growth	-.76**	.33**	-

Note. M = Mean; *SD* = Standard Deviation.
** $p < .01$.

Table 2 showed the correlation among variables sleepiness, individualistic growth and scholastic functioning. Pearson correlation revealed that sleepiness was negatively correlated with individualistic growth at ($r = -.758^{**}$, $p < 0.01$). Scholastic functioning and sleepiness was significantly correlated with each other at ($r = -.306^{**}$, $p < 0.01$) and this relationship was also negative as higher the sleepiness lower will be the individualistic growth among university scholars. Correlation was significant between scholastic functioning and individualistic growth as ($r = .330^{**}$, $p < 0.01$) as higher the individualistic growth then higher will be the scholastic functioning among scholars.

Table 3: *Linear Regression Analysis to Predict the Impact of Sleepiness on Individualistic Growth among University Scholars (N = 400)*

Variables		95% *CI*					
	B	*LL*	*UL*	SE	*β*	R^2	ΔR^2
Constant	146.2	144.1	148.23	1.03			
Sleepiness	-1.7	-1.91	-1.61	.076	-.76	.57	.57

Note. *β* = Beta; *CI* = Confidence Interval; $p < .05$.

Table 3 showed the relationship of sleepiness with individualistic growth. Linear Regression analysis showed that R^2 value of .574 revealed that sleepiness had 57% of variance in students having individualistic growth with $F(1, 398) = 537.3$, $p < .05$. analysis revealed that sleepiness negatively regressing on individualistic growth among university scholars ($\beta = -.758$, $p < .05$).Hence, it was concluded that subjects had higher sleepiness predict lower tendency of individualistic growth as minus sign showed negative impact of sleepiness on individualistic growth among university scholars.

Table 4: *Linear Regression Analysis to Predict the Impact of Sleepiness on Scholastic Functioning among University Scholars (N = 400)*

Variables		95% *CI*					
	B	*LL*	*UL*	SE	*β*	R^2	ΔR^2
Constant	28.05	26.87	29.23	.60			
Sleepiness	-.29	-.37	-20	.04	-.31	.09	.09

Note. *β* = Beta; *CI* = Confidence Interval; $p < .05$.

Table 4 showed the relationship of sleepiness with academic activities. Linear Regression analysis showed that R^2 value of .094 revealed that sleepiness had 9.4% of variance in students having academic activities with $F(1, 398) = 41.20$, $p < .05$. Analysis revealed that sleepiness negatively regressing on academic activities among university scholars ($\beta = -.306$, $p < .05$). Hence, it was concluded that students having higher sleepiness predict lower tendency of academic activities.

Table 5 showed analysis of independent sample t-test performed to compare the scores of individualistic growth and sleepiness among males and females. No significant difference for individualistic growth was reported for males and females.

Table 5: *Independent Sample t-Test Showing Gender Differences Between Individualistic Growth and Sleepiness (N = 400)*

Variables	Males (n = 228)		Females (n = 172)			
	M	*SD*	*M*	*SD*	*t(398)*	*p*
Individualistic Growth	125.0	13.5	124.0	13.6	.75	.46
Sleepiness	12.2	5.8	12.0	5.8	.27	.76

Note. $p < .05$.

Discussion

Current research was conducted to explore the association of daytime sleepiness with individualistic growth and scholastic functioning among scholars of Bahauddin Zakariya University, Multan. The objectives of the study were achieved by conducting questionnaire based research. The data was statistically treated and hypotheses of the study were treated by using Regression and Pearson correlation. There were three variables in the current study, sleepiness as an independent variable, individualistic growth and scholastic functioning as dependent variables.

Correlational based hypothesis suggested that higher the sleepiness lower will be the individualistic growth and scholastic functioning among university scholars and results revealed that individualistic growth negatively correlate with sleepiness likewise scholastic functioning negatively correlate with sleepiness. This had also been found by (Gregory, 2015) in the research that was conducted on pharmacists scholars that scholastic functioning are negatively correlated with daytime sleepiness either because of less sleep at time due to night studies. Other hypothesis revealed that individualistic growth and scholastic functioning among university scholars will have positive correlation between each other. Therefore, both dependent variables are positively correlated with each other. This has also been revealed (Colbert-Getz et al., 2016) in the research conducted on students at Johns Hopkins University that higher scholastic functioning (academic performance) accounted for higher individualistic growth with better learning environment.

Regression analysis was based on to explore that sleepiness will effect individualistic growth adversely among university scholars and results revealed that sleepiness regressed upon individualistic growth negatively that if sleepiness among university scholars is high then individualistic growth effects negatively.

Limitations and Recommendations

This study has several limitations that should be addressed in future research. It relies on self-reported data, which can introduce bias, and its cross-sectional design limits the ability to infer causality. The sample may lack diversity, and the measurement tools used might not fully capture the constructs of sleepiness, personal growth, and scholastic functioning. Additionally, external factors such as stress, diet, and physical activity were not controlled for, which could influence the results. Future research should consider longitudinal designs to track changes over time, incorporate objective sleep measures, and use more diverse and larger samples to enhance generalizability. Including multifactorial approaches that control for various external influences, designing interventional studies to test the effectiveness of sleep improvement programs, and integrating qualitative methods for deeper insights could provide a more comprehensive understanding of how sleepiness impacts personal growth and academic performance.

Conclusion

Present research aimed to explore the individuals' growth associated with daytime sleepiness among university scholars observing its impact on their academic performance. Results were interpreted by applying regression and correlational analyses. Regression analysis revealed that sleepiness during the day has a negative impact on individualistic growth. However academic functioning is negatively affected by excessive day time sleepiness. The correlational analysis revealed negative correlation between sleepiness during the daytime and individualistic growth as well as between day time sleepiness and academic performance among university scholars. Moreover, Individualistic growth and scholastic functioning were found to be positively correlated. Students should not practice day time sleepiness in order to enhance their individualistic growth. A good night sleep is a healthy behaviour rather than day time sleepiness among university scholars in order to maintain their health, wellbeing and performance to the optimal level.

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Received 22 June 2022

Revision received 25 May 2024