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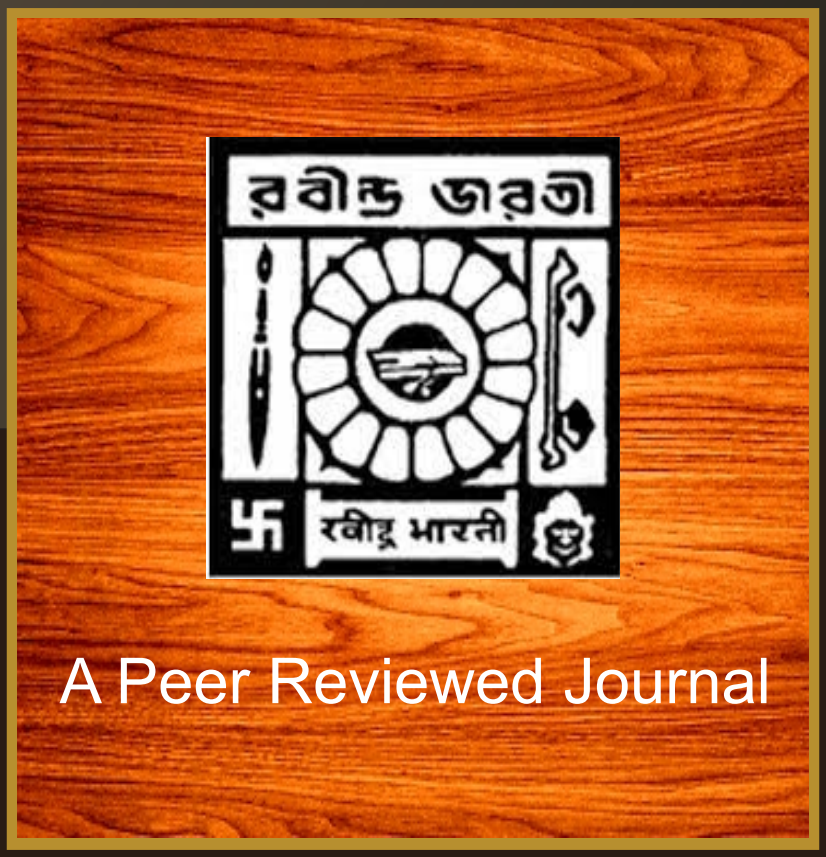

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Contents

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STRESSOR STRAIN MODEL OF SLEEP SATISFACTION IN SPECIAL SCHOOL CHILDREN WITH SOCIAL COMMUNICATION DISORDER: STRUCTURAL EQUATION MODEL

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Abstract:
Context: It is observed that, a link exists between Internet Addiction (IA), Sleep Satisfaction (SS), and Psychological Wellbeing (PW) issues in children with Social Communication Disorder (SCD). We developed a hypothesis model wherein IA has a direct effect on SS as well as it mediates with three different PW characters to determine which PW condition is relatively linked more with the coexistence of both IA and SS.
Methods: The Internet Addiction Test (IAT), the 21-Item Depression Anxiety Tension Scale (DASS), and the Pittsburgh SS Index (PSSI) were completed by total of 402 primary and secondary special school students. The hypothesis was tested with Maximum Likelihood structural equation model (SEM). Analysis of indirect impacts was completed using bootstrapping method.
Results: IA predicted Sleep Satisfaction via indirect routes mediated by PW issues (P=0.001). Downheartedness (P=0.001), Nervousness (P = 0.035) as well as Tension (P 0.001) were all linked to SS; but no relation statistically significant (P > 0.05).was found between Tension and Nervousness with SS.
Conclusion: The results support our hypothesis in terms of the mutual relationship among IA, SS & PW characters by establishing the critical impact of symptoms of depression.
Keywords: Internet Addiction, India, Special School Students, Psychological Wellbeing, and Sleep Satisfaction are some of the key phrases.
Messages to remember: Depressive symptoms are the most common PW concerns among primary and secondary special school students, and they are associated with both IA and SS. Preventing depressive feelings is crucial in preventing SS as a result of IA and PW issues.

Overview

Social Communication Disorder (SCD) is characterized by a lack of interest in social relationships and a delay in completing verbal milestones. If a student infrequently starts a shared connection with others or reacts nominally or strangely while collective propositions are made toward him/her, it might be a symptom of this condition. If a special school kid has a great grasp of various communicative and linguistic talents but difficulties to employ them in social situations, he or she is likely to have SCD (Tager-Flusberg et. al., 2005). This problem can make it difficult for a special student to comprehend and exhibit notions such as descriptions, discussions, and lengthy explanations, as well as reply correctly toward a variety of collective circumstances. The difficulties related to SCD stand not the same as the more broad impairments linked to cognitive ability abnormalities (Young et. al., 2005). SCD affects all modes of communication, including speech, writing, gestures, and even sign language (Bishop
& Baird, 2001). A special school kid is more prone to develop SCD if he or she has a household past of autistic range syndrome, communiqué issues, or explicit education disorders. For a student to be diagnosed with SCD, the symptoms must appear in initial infantile, albeit they may not fully visible until talking, verbal, and communiqué stresses begin to surpass his or her realistic abilities (Brooks & Bowler, 1992). There is currently no treatment for SCD. These children are predicted to benefit greatly from

conversation and linguistic treatment aimed at increasing language pragmatics, as well as social skills training. Social communication disorder can coexist by means of supplementary syndromes such as language syndrome, specialized education sickness, and cerebral improvement strain (Kennedy et. al., 1991).

The Internet has evolved into a knowledge tool and inseparable platform of modern life. However, it has become a long-term issue due to "problematic behavior of human interactions with information and communication technologies." (Kandell, 1998) This harmful behavior is described by the phrase "IA, demarcated by way of "psychological dependence on the internet, regardless of the sort of activity once signed on." (Kuss et. al., 2014). Among diverse populations, Internet Addiction (IA) prevails in the range beginning 0.8% to 26.7%, through a greater observance in teenagers and early grown-ups. (Ghamari et. al, 2011). Even in predominantly poverty-ridden nations like India, special school students have shown a prevalence of 10.8%–28.7% (Patra et al., 2020).

The deleterious effects of IA on sleep duration as well as its features have been documented in the research writings (Fatehi et. al., 2016). IA causes inconsistent sleep patterns and excessive daytime sleepiness (Lam, 2014), and IA patients have higher sleep disruptions (Van den Bulck, 2004). People with IA are 1.7 times more likely than people without IA to have SS (Choi, 2009).

IA is one of the most important predictors of psychological issues (Chen & Gau, 2016). According to a longitudinal study, persons with IA have 2.5 times increased chance of developing depressive symptoms than those without IA (Kim et. al., 2017). Nervousness and tension are also increased by IA (Ko et. al. 2012). Teenagers and early grownups by way of IA are more likely to experience depressive indications. Furthermore, numerous PW issues such as depressive symptoms (Lam & Peng, 2010), Nervousness (Kim et. al., 2016), and Tension (Brooks et. al., 2009) can all contribute to sleeplessness. Poor PW preceded the start of insomnia in more than 70% of persons suffering from both insomnia and nervousness (Szklo-Coxe et. al., 2007). Teenagers and early grownups remain further vulnerable towards PW in addition to sleep issues (Hicks & Garcia, 1987).

Design of Research model:

We proposed a paradigm in which a variety of PW issues, such as Downheartedness, Nervousness, and Tension, contribute to SS. SS is not just directly affected by IA but it is also impacted indirectly via the mediation of PW issues.

Therefore it appears that we studied both direct and indirect effects of IA on SS via the three PW disorders (Downheartedness, Nervousness, and Tension). The purpose of this study was to see which of the three PW issues is more closely linked to the presence of IA and SS.

Because special school students' well-being has an impact on the community's wellbeing, and also they are expected to show a significant part in the social wellbeing system in times to come so as mount studies to establish relationships among IA, PW, and SS. This could generate new information that will help develop plans of preventive measures for a section of society impacted.

Research Methodology

Participants

From April to September 2020, a occurrence study was undertaken. In the research, 1,754 schoolchildren of a reputed special school for kids with intellectual disability and learning difficulty participated. Students studying in first to twelfth standards in primary, secondary, and higher secondary levels of the special school were taken as a sample.

Nearly one-third of the entire cohort of special school students reported SCD. This entire group was chosen to take part in the research. This selection also helped to obtain an acceptable tester proportions intended for performing SEM. Primary, secondary, and higher secondary stages were used to divide the

sample group into three educational levels. Then, in percentage to the proportions of every single learning level, a random number table was used to sample using the student identification number. (Mohammad et. al., 2020).

The study enlisted the participation of 492 special school students. 64 students refused to participate in the study after learning about it. Based on the exclusion criterion of the study model, 16 student samples were removed, and finally, 412 samples participated in the study.

The special school ethics committee accepted this study. Also, written consent of participation was obtained from all participants. All the questions were filled and completed by the sample. Criteria for exclusion

Participants who met one of the following conditions were not allowed to participate:

1. Schoolchildren who did not respond at least 3 interrogations were excluded. (4 samples).

2. Pittsburgh SS Index (PSSI) requires that samples answer 1 to 4 questions; hence those students were excluded who did not answer as stated above. (16 samples).

Criterion B was established to enable proper data analysis using PSSI analytical model because each of the first to four questions plays a critical role in defining the domains of global SS.

Measures

Internet Addiction:

IAT was used to calculate IA (Johnson, 2006). In the study, we used the IAT of the Persian version and rephrased it to create an Indian equivalent and provide needful customization. This exercise created an appropriate questionnaire (Ehlers et. al., 2010). The IAT contains 20 interrogations weighed on a 5-point Likert Gauge going from 1 (seldom) to 5 (constantly). The ultimate worldwide mark, which fluctuates from 20 in the direction of 100, is premeditated by way of adding these scores together.

Higher the global score, the higher the IA (Ehlers et. al., 2010). It was pointed out that survey of this kind can be distributed into different constituents (Goel et al., 2013).

Because different characters were present to differentiate their validity and their characteristic high convergence across different categories of samples, Perceived Ease of Use (PEOU), Individual Task Confusion (ITC), Psychological and Mood Confusion (PMC), and Combined Task Confusion (CTC) were identified (Hoogland & Boomsma, 1998).

As a result, we considered IA to be latent variables containing PEOU, ITC, PMC, and CTC. The total score of OFVI was used and all cutoff limits for IA were met. Psychological well-being:

The Depression Anxiety Stress Scale (DASS21) can distinguish between symptoms of various psychological illnesses (Alavi et. al., 2010). [24] Each of the three subscales of Downheartedness, Nervousness, and Tension is examined by seven items in the questionnaire (21 items in total). Higher scores indicate poorer PW on those aspects. Three options are given to answer from 0 to 3. with 0 do not apply at all to the responder and 3 being fully applicable. If the score is higher the PW character is poorer in the category.

DASS21 is an abbreviated version of the 42-item questionnaire, so marks must be doubled for each subscale. Because the DASS21 questionnaire did not provide information on sleep behavior and PW issues in the past week, it avoids ideological overlap with the SS scale.

Persian version of DASS21 has been referred and a customized translation in Indian language is used for assessment of various PW components in the ambit of study (Mohammadsalehi, 2014).

We decided to categorize sample students to assess their Downheartedness in three Score levels; "0–9(Normal), 10–20(Moderate), and 21–42(Severe). AS regards we considered Nervousness scores 0–7(Normal), 8–14(Moderate), and 15–42(Severe). The Tension was given Scores 0–14(Normal), 15–

25(Moderate), and 26–4(Severe)", as quoted by Samani and Jokar based Lovibond's study.

The Standard of Sleep Satisfaction:

PSSI (Buysse et al., 2014) is a 1 entry survey that covers sleep characteristics, length, delay, efficiency, interruptions, medications used, daytime sleep, and undefined subjective S.S. In each area, marks vary between 0 in the direction of 3. The last collective range of mark is 0 in the direction of 21. This stands computed by way of adding the marks obtained in a total of seven domains. A greater collective score indicates a lower level of SS. The customized form of the PSSI, which is suitable in Indian context, was engaged in this research. It is formerly established to have acceptable validity and reliability (Farrahi et. al.,2012). To identify schoolchildren with SS, we used a total score of 6 as a cutoff criterion (Samani, S., & Joukar, 2007).

Variables in the background:

Sample participants were questioned on age, gender, place of residence (in a dormitory or otherwise), the status of parents, and their educational level (primary special school, secondary special school, or higher secondary special school level). During the first five years of special school enrollment, participants study in the primary section at the corresponding institution. Participants from the sixth to tenth class belong to the secondary special school section. Following that is the lasts 2 classes i.e. eleventh and twelfth class level viz. higher secondary special school level.

Statistical Examination

First, descriptive data for the tester individualities were calculated. The comparisons of scores across sample participants for each questionnaire were tested as per The Mann–Whitney U-test or else the Kruskal–Wallis tests. The Pearson's Correlation Coefficient test stood applied to study the association of every single observed pair of variables.

To compare the prevalence of the primary and secondary variables among different demographic groups, we employed the Chi-Square test. This exam was also applied to measure the frequency of PW issues and SS in participants based on whether or not they were Internet addict users.

Before doing SEM, the autocorrelation in residuals was evaluated using the Durbin–Watson test. The test accepts values between 1.5 and 2.5 as acceptable. The normal PP plot of the Regression Standardized Residual was used to test the multivariate normality assumption on residuals.

Cook's Distance Index was employed to see if there was an outlier or influential data point. The index's acceptability level was calculated using values less than one. The Variance Inflation Factor (VIF) was applied to measure the multi-collinearity of forecaster variables, with a value of less than 3 being considered acceptable.

The researcher tested the hypothesis that four indices of PEOU, ITC, PMC, and CTC represent the IA as a latent component using a structural equation model to determine maximum probability. The IA predicts SS both directly and through the mediation of several PW issues.

The researcher utilized the Chi-Square Test (Fan, 2003), as well as the Root, Mean Square Error of Approximation (RMSEA), in addition to the Goodness-of-Fit Index (GIF) to see in what way the theorized model is appropriate with detected data. The Goodness-of-Fit is achieved by dividing error by way of the Amount of freedom (CMIN/DF) obtained to solve discrepancy because P-value depends on the size of the sample.

The Adjusted Goodness-of-Fit Index (AGFI) was developed to correct for the effects of a host of latent variables indicators of GFI. The researcher also used psychological fit tests such as the Comparative Fit Index (CFI), Normal Fit Index (NFI), and Non-Standard Fit Index (NNFI) to examine model's relative operation ability between extremely worst fit and an ideal fit.

After checking the fit of the model, the researcher used bootstrapping to check for indirect effects, leading

to accurate results (MacKinnon et. al., 2007). Finally, each PW variable was rotatory removed in the model to determine the mediating role of PW problems.

The model fit was assessed by means of the subsequent criteria: RMSEA0.07, CMIN/DF 2, 2 P-value >0.05, GFI >0.95, AGFI >0.95, CFI >0.95, NFI >0.95 and NNFI >0.95 (Hooper et. al., 2008).SPSS Statistics and SPSS Amos Version 24 were used to conduct all of the analyses (Frewen et. al., 2013).

Results

Information that is both descriptive and comparative:

Females made up half of the participants (51.7%). The majority of the participants (94.7%) had both parents and lived at home (67.6%). They were 15.6 (+3.11) years old on average (standard deviation). A total of 33.6% were studying at the primary level, 27.5% secondary level, and 38.9 % higher secondary level of the special school.

IA was found in 39.2% of the participants and 42.3% of those who had it had SS. In 47.3% of the participants, moderate to severe PW problems were reported for Downheartedness, 51.4% for Nervousness, and 47% for Tension.

In those with IA, there were higher rates of SS (48.9 % vs. 33.8%, P=0.003), Downheartedness (67% vs. 38%, P 0.001), Nervousness (68.3% vs. 38.1%, P=0.001), in addition Tension (67.4% vs. 35.9%, P=0.001). Single parent participants had a statistically significant greater prevalence of Downheartedness (50.9% vs. 20.1%, P = 0.005) and Tension (49.9% vs. 18.9%, P = 0.005), according to the Chi-square test. Participants residing in a hostel had a statistically significant greater prevalence of Sleep Satisfaction (45.8% vs. 30.1%, P = 0.001). Marks of the Mann–Whitney U-test and the Kruskal–Wallis test are revealed in Table 1.

(See Table 1 Here)

Primary level contributor's Tension levels were substantially greater than those of secondary level participants (P = 0.003). Higher secondary participants scored considerably higher on the PSSI than participants studying the primary segment (P=0.002) and secondary segment (P=0.029). Furthermore, primary level participants' ITC scores were greater than those of secondary level (P = 0.009) and higher secondary level (P = 0.011) participants.

(See Table 2 Here)

SEM's application was proven by the findings. The residuals were regularly distributed and the Durbin–Watson test result was 1.7. The standardized remnants were spread between -2.4 and +2.6, and the residual mean was 0. The maximum VIF was 2.5 and the maximum Cook's Distance Index existed 0.03.

The model that predicts the results did not fit the hypothesized model

According to the software's modification indices, all of the distinct PW issues are most likely linked in a undeviating way. As a result, grounded on the works 3 undeviating paths remained included in the model (Yarcheski & Mahon, 2000). The model fit indices for the second model improved significantly.

(See Table 3 Here)

The multiple relationship routes between the variables were revealed by the bootstrapping results (Gana et. al., 2001).

(See Table 4 Here)

(See Figure 1 Here)

As demonstrated in Figure 1, IA is linked to each of the PW issues directly and favorably. IA can also indicate SS through indirect mechanisms mediated by PW issues. Although all PW issues are strongly linked to SS, the direct links between Tension and Nervousness and SS were not computationally weighty.

Discussion

The frequency of IA, PW issues, and SS in special school students of India was re-estimated in this study. This is also the first study to look at the effects of IA on both PW and SS at the same time. This study's frequency of IA (38.6%) was considerably greater than that documented in prior research. (Cheung & Wong, 2011) IA was shown to be prevalent in up to 30% of Chinese school students in similar investigations (Tan et. al., 2016). In this study, the prevalence of SS was almost 10% higher than that revealed in adolescents of Chinese origin belonging to Hong Kong (40% vs. 30.7%) (Wei et. al., 2012). The occurrence of higher incidence in IA in this model could explain the higher prevalence of SS. Surprisingly, even though Tan et. al. study had a lower frequency of IA (17.2%), the occurrence of Downheartedness (54.4%) and SS (40%) in the mentioned study is found matching to this study (Tan et. al., 2016). The observed disparity is attributable to distinct IA patterns in these two populations. Nonetheless, the rising rate of IA and, as a result, its harmful consequences have become a major issue attracting unique solutions from both the wellbeing system and the entire population. The researcher also discovered that gender has little bearing on vulnerability to IA, SS, or many PW issues. However, participants who lived in the home had higher sleep disruptions, and single parent participants were more tense and depressed than both parent participants.

Primary level students had higher Tension and IA levels, which could be attributed to maladaptation to a new lifestyle that they had never encountered previously. Furthermore, the higher secondary level participant's worse SS is likely due to repeated and long hours at tuitions and special schools. This research backs up the theory that IA is linked to each of the PW issues. Total correlations between IA and each of the PW disorders in our model did not surpass 0.4, which was consistent with earlier research (Park et. al., 2013). Furthermore, the overall association concerning IA in tally to SS was weaker.

These associations suggest that IA alone cannot explain a significant fraction of the experience of PW problems and SS; yet, the role of IA in the occurrence of both PW problems and SS cannot be overlooked. In other words, it's a hint that there should be more fundamental elements that occur before all of the IA, PW issues and SS, and it forecasts their cohabitation. A good example of such a variable is "impulsivity," which was recognized as a threat cause for gaming in addition to PW problems in a student-based study conducted in Singapore's special school (Yuan et. al., 2011).

IA and a variety of PW issues were also found to positively predict SS. Previous research has found a link between IA and SS, as well as a link between PW disorders and SS (Kaess et. al., 2014).

However, the significance of PW disorders as a mediator between IA and SS is poorly explored in the research. This research shows that IA is linked to SS as a result of the full mediation of PW issues. Prior research has previously asserted that IA does not affect duration sleep (Wilson et. al., 2018). Whereas our model displays that among special school students domain of SS is thoroughly impaired as the length of sleep length is concerned. Perhaps it explains why IA isn't directly linked to SS in this model.

Moreover, prior research indicates that IA has no direct effect on SS; instead, it affects the SS through a mental process (Khalifian et. al., 2013). IA is only directly related to SS in the absence of both sleep and restlessness, as shown in the reverse direction of the elements in this model.

According to Courtenay, irregular metabolic rates in specific brain regions (basal ganglia) can cause Downheartedness and Nervousness symptoms in people with IA (Courtenay, 2014). Furthermore, SS is linked to decreased serotonergic activity in the basal ganglia (Wilson et. al., 2018). The psychological process that relates IA with SS appears to be melancholy and nervousness symptoms.

The researchers' findings differed from those of Tan et al, found that depressing indications in part moderated the link concerning IA as well as sleep complications (Tan et. al., 2016). This underscores that in that study, the method of the problematic Internet user was different. Special school students are

more likely to have IA for a variety of reasons. For example, special school children rely on Internet-based mobile learning applications as well as special school assessments for learning (Khalifan et. al. 2013).

Nonetheless, the high proportion of the link (71.3%) between IA and SS via the indirect pathway (mediated by depressive symptoms) in this study implies that the process of being an Internet addict in special school students matches with that of the general population. Similarly, the researcher discovered that both Nervousness and Tension can cause sleep disturbances only when depressive symptoms are fully mediated.

The direct effect of IA and frustration in this model was seen in fewer than half of the overall weight (0.15 vs. 0.41). This suggests that an secondary relationship exists in the IA and that Downheartedness through Nervousness and Tension mediators is more likely than direct routes. These findings suggest that when participants experience symptoms of depression as a result of IA, they are more likely to experience other problems with PW.

Furthermore, when the direct effect of Downheartedness on SS is compared separately (0.56) and in the model (0.38), it shows that when Downheartedness is caused by IA or other PW issues, it has a lower association with SS. All of these data show that the relationship between these variables is more nuanced than previously understood and that long-term research is needed to properly make out their relationship.

Model Limitation

Even though DAS21 is consistently assessing the symptoms of PW disorder, it is an automatically recorded questionnaire that does not contain diagnostic assessment factors for PW problems. Moreover, it was a cross-sectional study, as the causal path was not a time criterion. In this work, the researcher used only lead-leg connections to localize the variables in the basic model based on the material. Consequently, longitudinal research is recommended to find the underlying variables and clarify their complex interactions.

Conclusion

In addition to the high rates of IA in special school children, various disorders of PW and SS, these findings highlight the important role of depressive symptoms and reinforce our understanding of the interrelationships between these abnormal children's activity and behavior. Consequently, the most important factor in preventing insomnia and sleep disturbances due to IA and PW problems is to avoid the symptoms of depression.

REFERENCES

1. Alavi, S., & Eslami, M., & Maracy, M., & Najafi, M., & Jannatifard, F., & Rezapour, H. (2010). Psychometric Properties Of Young Internet Addiction Test. International Journal Of Behavioral Sciences, 4(3 (13)), 183-189. https://www.sid.ir/en/journal/ViewPaper.aspx?id=211267
2. Bishop DV, Baird G. Parent and teacher report of pragmatic aspects of communication: use of the children's communication checklist in a clinical setting. Dev Med Child Neurol. 2001 Dec;43(12):809-18. doi: 10.1017/s0012162201001475. Erratum in: Dev Med Child Neurol. 2005 Apr;47(4):287. PMID: 11769267.
3. Brook SL, Bowler DM. Autism by another name? Semantic and pragmatic impairments in children. J Autism Dev Disord. 1992 Mar;22(1):61-81. doi: 10.1007/BF01046403. PMID: 1592765.
4. Buysse, D. J., Reynolds, C. F., 3rd, Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. Psychiatry research, 28(2), 193–213. https://doi.org/10.1016/0165-1781(89)90047-4

5. Chen, Y. L., & Gau, S. S. (2016). Sleep problems and internet addiction among children and adolescents: a longitudinal study. Journal of sleep research, 25(4), 458–465. https://doi.org/10.1111/jsr.12388
6. Cheung, L. M., & Wong, W. S. (2011). The effects of insomnia and internet addiction on depression in Hong Kong Chinese adolescents: an exploratory cross-sectional analysis. Journal of sleep research, 20(2), 311–317. https://doi.org/10.1111/j.1365-2869.2010.00883
7. Choi, K., Son, H., Park, M., Han, J., Kim, K., Lee, B., & Gwak, H. (2009). Internet overuse and excessive daytime sleepiness in adolescents. Psychiatry and clinical neurosciences, 63(4), 455–462. https://doi.org/10.1111/j.1440-1819.2009.01925
8. Dinis, J., & Bragança, M. (2018). Quality of Sleep and Depression in College Students: A Systematic Review. Sleep science (Sao Paulo, Brazil), 11(4), 290–301. https://doi.org/10.5935/1984-0063.20180045
9. Ehlers, C. L., Gilder, D. A., Criado, J. R., & Caetano, R. (2010). Sleep quality and alcohol-use disorders in a select population of young-adult Mexican Americans. Journal of studies on alcohol and drugs, 71(6), 879–884. https://doi.org/10.15288/jsad.2010.71.879
10. Fan, X. (2003). Using Commonly Available Software For Bootstrapping In Both Substantive And Measurement Analyses. Educational and Psychological Measurement, 63(1), 24–50. https://doi.org/10.1177/0013164402239315
11. Farrahi Moghaddam, J., Nakhaee, N., Sheibani, V., Garrusi, B., & Amirkafi, A. (2012). Reliability and validity of the Persian version of the Pittsburgh Sleep Quality Index (PSQI-P). Sleep & breathing = Schlaf & Atmung, 16(1), 79–82. https://doi.org/10.1007/s11325-010-0478-5
12. Fatehi F, Monajemi A, Sadeghi A, Mojtahedzadeh R, Mirzazadeh A. Quality of Life in Medical Students With Internet Addiction. Acta Med Iran. 2016 Oct;54(10):662-666. PMID: 27888595
13. Frewen, P. A., Schmittmann, V. D., Bringmann, L. F., & Borsboom, D. (2013). Perceived causal relations between anxiety, posttraumatic stress and depression: extension to moderation, mediation, and network analysis. European journal of psychotraumatology, 4, 10.3402/ejpt.v4i0.20656. https://doi.org/10.3402/ejpt.v4i0.20656
14. Gana, K., Martin, B., & Canouet, M. D. (2001). Worry and anxiety: is there a causal relationship?. Psychopathology, 34(5), 221–229. https://doi.org/10.1159/000049314
15. Gentile, D. A., Choo, H., Liau, A., Sim, T., Li, D., Fung, D., & Khoo, A. (2011). Pathological video game use among youths: a two-year longitudinal study. Pediatrics, 127(2), e319–e329. https://doi.org/10.1542/peds.2010-1353
16. Ghamari, F., Mohammadbeigi, A., Mohammadsalehi, N., & Hashiani, A. A. (2011). Internet addiction and modeling its risk factors in medical students, iran. Indian journal of psychological medicine, 33(2), 158–162. https://doi.org/10.4103/0253-7176.92068
17. Goel, Deepak & Subramanyam, Alka & Kamath, Ravindra. (2013). A study on the prevalence of Internet addiction and its association with psychopathology in Indian adolescents. Indian journal of psychiatry. 55. 140-3. 10.4103/0019-5545.111451.
18. Hicks, R. A., & Garcia, E. R. (1987). Level of stress and sleep duration. Perceptual and motor skills, 64(1), 44–46. https://doi.org/10.2466/pms.1987.64.1.44
19. Hoogland, J. J., & Boomsma, A. (1998). Robustness Studies in Covariance Structure Modeling: An Overview and a Meta-Analysis. Sociological Methods & Research, 26(3), 329–367. https://doi.org/10.1177/0049124198026003003
20. Hooper, Daire & Coughlan, Joseph & Mullen, Michael. (2007). Structural Equation Modeling: Guidelines for Determining Model Fit. The Electronic Journal of Business Research Methods. 6.

21. Johnson, E. O., Roth, T., & Breslau, N. (2006). The association of insomnia with anxiety disorders and depression: exploration of the direction of risk. Journal of psychiatric research, 40(8), 700–708. https://doi.org/10.1016/j.jpsychires.2006.07.008
22. Kaess, M., Durkee, T., Brunner, R., Carli, V., Parzer, P., Wasserman, C., Sarchiapone, M., Hoven, C., Apter, A., Balazs, J., Balint, M., Bobes, J., Cohen, R., Cosman, D., Cotter, P., Fischer, G., Floderus, B., Iosue, M., Haring, C., Kahn, J. P., … Wasserman, D. (2014). Pathological Internet use among European adolescents: psychopathology and self-destructive behaviours. European child & adolescent psychiatry, 23(11), 1093–1102. https://doi.org/10.1007/s00787-014-0562-7
23. Kandell, J. J. (1998). Internet addiction on campus: The vulnerability of college students. CyberPsychology & Behavior, 1(1), 11–17. https://doi.org/10.1089/cpb.1998.1.11.
24. Kennedy GJ, Kelman HR, Thomas C. Persistence and remission of depressive symptoms in late life. Am J Psychiatry. 1991 Feb;148(2):174-8. doi: 10.1176/ajp.148.2.174. PMID: 1824809
25. Khalifian, S., Markman, T., Sampognaro, P., Mitchell, S., Weeks, S., & Dattilo, J. (2013). Medical student appraisal: searching on smartphones. Applied clinical informatics, 4(1), 53–60. https://doi.org/10.4338/ACI-2012-10-CR-0047.
26. Kim, K., Lee, H., Hong, J. P., Cho, M. J., Fava, M., Mischoulon, D., Kim, D. J., & Jeon, H. J. (2017). Poor sleep quality and suicide attempt among adults with internet addiction: A nationwide community sample of Korea. PloS one, 12(4), e0174619. https://doi.org/10.1371/journal.pone.0174619
27. Kim, N. R., Hwang, S. S., Choi, J. S., Kim, D. J., Demetrovics, Z., Király, O., Nagygyörgy, K., Griffiths, M. D., Hyun, S. Y., Youn, H. C., & Choi, S. W. (2016). Characteristics and Psychiatric Symptoms of Internet Gaming Disorder among Adults Using Self-Reported DSM-5 Criteria. Psychiatry investigation, 13(1), 58–66. https://doi.org/10.4306/pi.2016.13.1.58
28. Ko, C. H., Yen, J. Y., Yen, C. F., Chen, C. S., & Chen, C. C. (2012). The association between Internet addiction and psychiatric disorder: a review of the literature. European psychiatry : the journal of the Association of European Psychiatrists, 27(1), 1–8. https://doi.org/10.1016/j.eurpsy.2010.04.011
29. Kuss DJ, Griffiths MD, Karila L, Billieux J. Internet addiction: a systematic review of epidemiological research for the last decade. Curr Pharm Des. 2014;20(25):4026-52. doi: 10.2174/13816128113199990617. PMID: 24001297
30. Lam L. T. (2014). Internet gaming addiction, problematic use of the internet, and sleep problems: a systematic review. Current psychiatry reports, 16(4), 444. https://doi.org/10.1007/s11920-014-0444-1
31. Lam, L. T., & Peng, Z. W. (2010). Effect of pathological use of the internet on adolescent mental health: a prospective study. Archives of pediatrics & adolescent medicine, 164(10), 901–906. https://doi.org/10.1001/archpediatrics.2010.159
32. Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. Behaviour research and therapy, 33(3), 335–343. https://doi.org/10.1016/0005-7967(94)00075-u
33. MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation analysis. Annual review of psychology, 58, 593–614. https://doi.org/10.1146/annurev.psych.58.110405.085542
34. Malakeh Z. Malak, Anas H. Khalifeh, Ahmed H. Shuhaiber, Prevalence of Internet Addiction and associated risk factors in Jordanian school students, Computers in Human Behavior, Volume 70, 2017, Pages 556-563, ISSN 0747-5632, https://doi.org/10.1016/j.chb.2017.01.011
35. Mohammadsalehi, N., Mohammadbeigi, A., Jadidi, R., Anbari, Z., Ghaderi, E., & Akbari, M. (2015). Psychometric Properties of the Persian Language Version of Yang Internet Addiction Questionnaire:

An Explanatory Factor Analysis. International journal of high risk behaviors & addiction, 4(3), e21560. https://doi.org/10.5812/ijhrba.21560

36. Norbury C. F. (2014). Practitioner review: Social (pragmatic) communication disorder conceptualization, evidence and clinical implications. Journal of child psychology and psychiatry, and allied disciplines, 55(3), 204–216. https://doi.org/10.1111/jcpp.12154
37. Patra S, Patro BK, Acharya SP. COVID-19 lockdown and school closure: Boon or bane for child mental health, results of a telephonic parent survey. Asian J Psychiatry. 2020 Dec;54:102395. doi: 10.1016/j.ajp.2020.102395. Epub 2020 Sep 5. PMID: 33271696; PMCID: PMC7836815.
38. Park, S., Hong, K. E., Park, E. J., Ha, K. S., & Yoo, H. J. (2013). The association between problematic internet use and depression, suicidal ideation and bipolar disorder symptoms in Korean adolescents. The Australian and New Zealand journal of psychiatry, 47(2), 153–159. https://doi.org/10.1177/0004867412463613
39. Samani, S., & Joukar, B. (2007). A Study on the Reliability and Validity of the Short Form Of The Depression Anxiety Stress Scale (Dass-21). Journal of Social Sciences And Humanities Of Shiraz University, 26(3 (52) (Special Issue In Education)), 65-77. Https://Www.Sid.Ir/En/Journal/Viewpaper.Aspx?Id=125151
40. Shadzi, M. R., Salehi, A., & Vardanjani, H. M. (2020). Problematic Internet Use, Mental Health, and Sleep Quality among Medical Students: A Path-Analytic Model. Indian journal of psychological medicine, 42(2), 128–135. https://doi.org/10.4103/IJPSYM.IJPSYM_238_19
41. Szklo-Coxe, M., Young, T., Finn, L., & Mignot, E. (2007). Depression: relationships to sleep paralysis and other sleep disturbances in a community sample. Journal of sleep research, 16(3), 297–312. https://doi.org/10.1111/j.1365-2869.2007.00600
42. Tager-Flusberg, H., Paul, R., & Lord, C. (2005). Language and communication in autism. In D.J. Cohen, & F.R. Volkmar (Eds.), Handbook of Autism and Pervasive Developmental Disorders (3rd edn, pp. 335– 364). New York: John Wiley and Sons.
43. Tan, Y., Chen, Y., Lu, Y., & Li, L. (2016). Exploring Associations between Problematic Internet Use, Depressive Symptoms and Sleep Disturbance among Southern Chinese Adolescents. International journal of environmental research and public health, 13(3), 313. https://doi.org/10.3390/ijerph13030313
44. Van den Bulck J. (2004). Television viewing, computer game playing, and Internet use and self-reported time to bed and time out of bed in secondary-school children. Sleep, 27(1), 101–104. https://doi.org/10.1093/sleep/27.1.101.
45. Wei, Han-Ting & Chen, Mu-Hong & Huang, Po-Cheng & Bai, Ya. (2012). The Association between Online Gaming, Social Phobia, and Depression: an Internet Survey... BMC psychiatry. 12. 92. 10.1186/1471-244X-12-92
46. Wilson, H., Giordano, B., Turkheimer, F. E., Chaudhuri, K. R., & Politis, M. (2018). Serotonergic dysregulation is linked to sleep problems in Parkinson's disease. NeuroImage. Clinical, 18, 630–637. https://doi.org/10.1016/j.nicl.2018.03.001
47. Wittchen, H. U., Beesdo, K., Bittner, A., & Goodwin, R. D. (2003). Depressive episodes--evidence for a causal role of primary anxiety disorders?. European psychiatry : the journal of the Association of European Psychiatrists, 18(8), 384–393. https://doi.org/10.1016/j.eurpsy.2003.10.001
48. Yarcheski, A., & Mahon, N. E. (2000). A causal model of depression in early adolescents. Western journal of nursing research, 22(8), 879–894. https://doi.org/10.1177/01939450022044854

49. Young EC, Diehl JJ, Morris D, Hyman SL, Bennetto L. The use of two language tests to identify pragmatic language problems in children with autism spectrum disorders. Lang Speech Hear Serv Sch. 2005 Jan;36(1):62-72. doi: 10.1044/0161-1461(2005/006). PMID: 15801508.
50. Yuan, K., Qin, W., Liu, Y., & Tian, J. (2011). Internet addiction: Neuroimaging findings. Communicative & integrative biology, 4(6), 637–639. https://doi.org/10.4161/cib.17871

Tables and Graphs:

Table 1: Outcomes of the ―Mann–Whitney U-test and the Kruskal–Wallis Test

Variable Score	Boy	Girl		Single	Dual		Home	Hostel		P. S. S	S. S. S	H. S. S.
Downheartedness	21.40 ± 18.64	0.167	11.85 ± 21.11	16.08 ± 17.05	0.012	21.53 ± 19.47	21.44 ± 19.55	0.161	20.05 ± 18.84	21.41 ± 18.85	23.19 ± 21.68	19.91 ± 18.95
Nervousness	18.65 ± 17.23	0.878	18.91 ± 17.98	16.55 ± 17.09	0.083	18.99 ± 17.56	19.32 ± 17.93	0.091	17.88 ± 17.11	19.50 ± 17.42	18.89 ± 18.32	17.98 ± 17.54
Tension	24.56 ± 18.78	0.555	25.09 ± 19.62	20.42 ± 17.97	0.009*	25.09 ± 19.11	25.23 ± 19.25	0.107	23.76 ± 18.97	25.99 ± 18.87	24.87 ± 20.41	23.30 ± 18.93
PSSI	16.10 ± 13.29	0.911	16.23 ± 13.65	16.29 ± 13.54	0.771	16.20 ± 13.55	16.71 ± 13.70	<0.001*	15.33 ± 12.99	15.78 ± 13.28	15.71 ± 13.26	16.77 ± 13.63
IAT	54.99 ± 23.83	0.344	53.48 ± 22.97	52.70 ± 25.90	0.331	54.78 ± 23.35	54.78 ± 23.86	0.225	53.37 ± 23.79	56.35 ± 23.40	51.58 ± 23.32	52.87 ± 23.37
										0.009*		

P.S.S.- Primary Special school Section; S.S.S. – Secondary Special school Section, H. S. S.- Higher Secondary Special school Section; ―PSSI- Pittsburg Sleep Satisfaction Index; IAT- Internet Addiction Test; a Doubled up mark of every single sub-scale of ―DASS-21 is revealed ; P of each Mann-Whitney U-test or Kruskal-Wallis test is revealed underneath the ―Mean Scores *Significant P

Table 2 shows how variables correlate in a matrix

S#	Variable Score	M	SD	1.	2.	3.	4.	5.	6.	7.
1	PEOU	39.42	15.54							
2	ITC	33.70	11.03	0.89						
3	PMC	23.35	7.32	0.92	0.79					
4	CTC	17.32	6.21	0.83	0.78	0.59				
5	Downheartedness	21.06	17.92	0.53	0.45	0.39	0.48			
6	Nervousness	18.71	16.29	0.53	0.52	0.40	0.71	0.68		
7	Tension	24.69	15.39	0.48	0.44	0.38	0.82	0.75	0.71	
8	SS	16.19	9.06	0.37	0.31	0.33	0.55	0.48	0.52	0.59
M-Mean; SD – Standard Deviation; All Associations stay weighty at P<0.01										

Table 3: Stressor Strain Model of Sleep Satisfaction in Special School Children with Social Communication Disorder

Index	Model One	Model Two
X2	<0.001	0.45
CMIN/DF	28.87	0.63
RMSEA	0.21	<0.001
GFI	0.65	0.86
AGFI	0.27	0.84
CFI	0.62	0.85
NFI	0.62	0.85
NNFI	0.37	0.77
—X2 Chi-square; CMIN/DF-Minimum discrepancy divided by its degrees of freedom; RMSEA-Root mean square error of approximation; GFI – Goodness-of-fit index; AGFI-Adjusted goodness-of-fit index; CFI-Comparative fit index; NFI – Normed fit index; NNFI-Non normed fit index		

Table 4: —Bootstrapping Effects: —Standardised Regression Weights

S#	Variable	1	2	3	4	5
1	IA		0.52***	0.56***	0.56***	0.39***
2	Tension			0.70***	0.75***	0.46***
3	Nervousness	0.35***			0.28***	0.24*
4	Downheartedness	0.41***	0.21***			0.38***
5	SS	0.31***	0.33***	0.16***		
—*P<0.05		—**P<0.01		***P<0.001		
Secondary weight						

Figure 1: Final Stressor Strain Model of Internet Addiction to Sleep Satisfaction in Special School Children with Social Communication Disorder‖ . ―Squared Multiple Correlations‖ are presented in circles. ―Standardized Regression Weights‖ are offered on paths. ―E-Error; PEOU: Perceived Ease of Use; CTC: Collective Task Confusion; ITC: Individualized Task Confusion; PMC: Psychic and Mood Confusion; ―*P<0.05, **P<0.01, ***P<0.001.