ORIGINAL ARTICLE

Internet Gaming among Medical Students: Its Impact on Quality of Life

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ABSTRACT

Objective: To determine the frequency of Internet gaming disorder among medical students and its impact on Quality of life on these students.

Study Design: Cross-sectional study.

Place and Duration of Study: This study was conducted in a tertiary care Mental Health Facility Armed Forces Institute of Mental Health (AFIMH) Rawalpindi, Pakistan from 1st January 2021 to 30th June 2022.

Methods: Basic demographic data including age, gender, medical college and year of study among consecutively sampled 950 participants was recorded. Each participant was given internet gaming Disorder score (IGD) and world health organization quality of life assessment score (WHO-QoL) to ascertain level of involvement in internet gaming and quality of life respectively. Students were to fill both forms within twenty four hours.

Results: Out of total 950 participants 30 (3.2%) students scored severe, 92 (9.7%) scored moderate, 320 (33.7%) students scored for mild levels while 508 (53.5%) attained normal or no internet gaming disorder scores. Assessment of quality of life revealed that 500 (52.6%) enjoyed good quality of life, 361 (38%) experienced average quality of life while 89 (9.4%) of students experienced below average quality of life. IGD scores show higher level of significance with quality of life among medical students ($P < 0.05$).

Conclusion: Indulgence in internet gaming negatively affects quality of life.

Keywords: *Internet Gaming Disorder, Medical Students, Quality of Life.*

How to cite this: *Bajwa AA, Ali S, Tahir J, Nazir T, Asif A. Internet Gaming Among Medical Students: Its Impact On Quality Of Life. Life and Science. 2024; 5(4): 504-510. doi: http://doi.org/10.37185/LnS.1.1.790*

Introduction

Internet has become vital and important part of our daily routine activities.[1] Although internet usage is not as yet considered an addiction disorder but Young has introduced the term "internet addiction disorder" based on DSM IV criteria for addiction and obsession by simply using "substance" in place of "internet" for the researcher as a starting point.[2] Walker observes that internet addiction is an obsessive and compulsive behavior as it is similar to gambling and compulsive shopping.[3] Among young individuals indulgence and interest in internet games is popular and pervasive activity raising concerns regarding mental health. For further research "internet gaming disorder" has been added in DSM 5 by American Psychiatric Association and in ICD-11 by WHO (World health organization).[4] Playing games for longer periods, skipping study hours, achieving lower grades in school, having sleep problems and often feeling 'addicted to gaming' are hallmark of internet gaming disorder. Feeling of "addicted to gaming" is manifested by difficulty to control gaming, other interests and daily routine activities are undermined and gaming gets precedence despite knowing the negative consequences.[5] Addiction to internet gaming is manifested in deterioration of social and occupational disturbance

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Received: Mar 28, 2024; 1st Revision: July 20, 2024
2nd Revision: Aug 29, 2024 Accepted: Sep 15, 2024

encompassing significant impairment in important areas of life like personal, family, social, educational as well as occupational. To label the diagnosis of internet gaming disorder these features should be present over a period of at least 12 months but if the symptoms are of severe nature then the required duration can be shortened.[6] Increased stress, obesity, compromised professional proficiency, job loss, deterioration in academic performance, disturbance in sleep and relationships, development of depression, anxiety, aggression and hostility has correlation with internet gaming. Risk factors for development of internet gaming disorder are depressive symptoms, poor sleeping pattern, male gender, greater number of hours spent on gaming and total free-time spent on activities other than gaming. In young generation Internet gaming disorder (IGD) is an emerging issue affecting mental health, consequently quality of life is getting compromised. Among medical students the effects of internet gaming are more detrimental as it can affect the learning capacity and poor performance in academic evaluations and practical life.[7]

To the best of our knowledge no such study was conducted in local settings in recent past. So the purpose of this study was to highlight the magnitude of problem and recommendations for the policy makers and planners in order to devise strategies for improving quality of physical, social and mental health of medical students.

Methods

This cross sectional study was conducted in a tertiary care Mental Health Facility, Armed Forces Institute of Mental Health (AFIMH) Rawalpindi, Pakistan from 1st January 2021 to 30th June 2022.

To conduct this study at two different medical colleges in the vicinity of Rawalpindi (Army Medical College and Fauji Foundation Medical College) were selected and study was conducted from June 2021 to 24 December 2021 after approval was sought from Ethical review committee vide serial no: 016/1/21. A total sample size of 950 was obtained by using n=z2pq/d2 sampling formula based on the study results conducted by Beranuy et al where anticipated population proportion was 4.5%.[8] sampling of 950 subjects was achieved by using technique of convenience non probability sampling. Medical students of both genders, with age 19-25 years were included. Medical students suffering from any psychiatric illness, currently on treatment from psychiatry department, possibility of self medication on history, not willing for consent were excluded.

Complete relevant demographic including age, sex, years of medical school and number of years involved in playing internet games were inquired. Each participant was given internet gaming score (IGD) and WHO-QoL (world health organization quality of life assessment score) to fill within twenty four hours.

For simplicity and ease “game” or “gaming is used instead of IGD questionnaire which refers to Online Games. It contains ten questions with three possible responses of Never, Sometimes (less than two hours a day, less than 4 days a week) and Often (more than two hours a day, in at least 4 days a week) on a scale of 0 to 2 occurring over the last 12 months. Response were purely participant's perception about his/her status about internet gaming. A score of 20 indicates severe IGD, score of 11-19 is moderate IGD, scores of 1-10 reflect mild IGD while 0 score indicate absence of IGD.

WHOQOL-BREF questionnaire to assess the quality of life has total of twenty six questions with five possible responses from very poor to very good for the first two questions relating to life and health while responses for questions from three to twenty six are from Not at all to extreme amount.[1] WHOQOL-BREF covers physical, psychological, social relationship and environmental domains of life. Mean scores within each domain is used to calculate the domain score which is then converted as per instructions. Converted score range is from 4-20 and 0-100 (comparable with WHOQOL-100). Higher scores denote higher quality of life.[1] Scores of 104-130 indicate Good QOL, 79-103 average QOL while scores less than 78 reflect below average QOL.

Statistical package for the social science version 24 (SPSS-24) was used to analyze data. Quantitative variables like age, IGD score and QoL score was tabulated as Mean ± SD. Frequency and percentage were calculated for qualitative variables like age groups, gender, study year, medical college, IGD score categories and QoL score categories. Chi square test was applied to find relation of IGD score categories and QoL score categories. Stratification

was done to control confounding factors like age, gender, study year and medical college while *Chi square* test was applied to get statistical significance level of 5% ($P \leq 0.05$).

Results

Results showed that among total of 950 participants mean age was 22.22 ± 1.96 ranging between 19 and 25 years while 204 (21.5%) belonged to 20 years of age group and 746 (78.5%) were above the age of 20 years, 519 (54.6%) male participants while 431 (45.4%) participants were females, 725 (76.3%) belonged to first year and second year while 225 (23.7%) were students of third year to final year. 422 (44.4%) students belonged to Army Medical College while 528 (55.6%) students were from Fauji Foundation Medical College. Out of total participants 30 (3.2%) students scored severe, 92 (9.7%) scored moderate, 320 (33.7%) students exhibited mild levels while 508 (53.5%) attained normal or no internet gaming disorder. Assessment of quality of life revealed that 500 (52.6%) enjoyed good quality of life, 361 (38%) experienced average quality of life while 89 (9.4%) of students experienced below average quality of life. (Table-1). When internet gaming disorder (IGD) score was compared with scores on quality of life it was observed that among total of 30 students scoring severe on IGD 7 (23.3%) had average QOL score, 23 (76.7%) exhibited below average QOL score. Among 92 students with moderate IGD scores 4 (4.3%) had good QOL scores, 75 (81.5%) experienced average QOL score while 13 (14.1%) exhibited less than average QOL score. Out of 320 students who scored mild on IGD 191 (59.1%) showed good QOL score, 112 (35%) students exhibited average QOL while 17 (5.3%) students experienced less than average QOL. Among total of 508 students 305 (60%) with no IGD exhibited good QOL score, 167 (32.9%) students with no IGD experienced average QOL while 36 (7.1%) students with no IGD showed below average QOL score. (Table-2). The IGD scores and QOL scores were stratified for age groups, gender, study year and medical college it showed higher level significance with all variables. ($P < 0.05$) (Table-3).

Table-1: Demographic variables

S.no	Category	
1.	Age (Mean ± SD)	22.22 ± 1.96
	Range	
	19-20 years n (%)	204 (21.5)
	Above 20 years n (%)	746 (78.5)
2.	Gender	n (%)
	Male	519 (54.6)
	Female	431 (45.4)
3.	Academic year	n (%)
	First Professional MBBS	725 (76.3)
	Second to Final Professional MBBS	225 (23.7)
4.	College of Study	n (%)
	Army Medical College	422 (44.4)
	Fauji Foundation Medical College	528 (55.6)
5	Internet Gaming Disorder Score	n (%)
	No	508 (53.5)
	Mild	320 (33.7)
	Moderate	92 (9.7)
	Severe	30 (3.2)
6.	Quality of Life Score	n (%)
	Less than Average	89 (9.4)
	Average	361 (38)
	Good	500 (52.6)

Table-2: Frequency of internet gaming disorder and its relation with quality of life

S.no	Category Internet Gaming Disorder Score	QoL Score Good n (%)	Average n (%)	Below Average n (%)	Total n (%)	*Chi-square* value	*P* value
1.	Severe	0 (0)	7 (23.3)	23 (76.7)	30 (100)	272.392	<0.05
2.	Moderate	4 (4.3)	75 (81.5)	13 (14.1)	92 (100)		
3.	Mild	191 (59.7)	112 (35)	17 (5.3)	320 (100)		
4.	No	305 (60)	167 (32.9)	36 (7.1)	508 (100)		

Table-3: Comparison of IGD (Internet Gaming Disorder score) and QoL (Quality of Life) with study variables

S.no	Category	IGD score	QoL Score Good	Average	Below average	Total	*Chi-square* value	*P*-value
1.	Age up to 20 years	Severe	0 (0)	0 (0)	0 (0)	0 (0)	90.380	<0.05
		Moderate	2 (11.8)	6 (35.3)	9 (52.9)	17 (100)		
		Mild	58 (67.4)	27 (31.6)	1 (1.2)	86 (100)		
		No	40 (39.6)	59 (58.4)	2 (2)	101 (100)		
	Age above 20 years	Severe	0 (0)	7 (23.3)	23 (76.7)	30 (100)	273.574	<0.05
		Moderate	2 (2.7)	69 (92)	4 (5.3)	75 (100)		
		Mild	133 (56.8)	83 (36.3)	16 (6.8)	234 (100)		
		No	265 (65.1)	108 (26.5)	34 (8.4)	407 (100)		
2.	Males	Severe	0 (0)	7 (23.3)	23 (76.7)	30 (100)	350.163	<0.05
		Moderate	2 (3.5)	55 (96.5)	0 (0)	57 (100)		
		Mild	99 (54.4)	83 (45.6)	0 (0)	182 (100)		
		No	144 (57.6)	98 (39.2)	8 (3.2)	250 (100)		
	Females	Severe	0 (0)	0 (0)	0 (0)	0 (0)	48.100	<0.05
		Moderate	2 (5.7)	20 (57.1)	13 (37.1)	279 (100)		
		Mild	92 (66.7)	29 (21)	17 (12.3)	138 (100)		
		No	161 (62.4)	69 (26.7)	28 (10.9)	258 (100)		
3.	Study Year First and Second Year	Severe	0 (0)	0 (0)	0 (0)	0 (0)	137.244	<0.05
		Moderate	2 (2.2)	75 (83.3)	13 (14.4)	90 (100)		
		Mild	34 (21)	111 (68.5)	17 (10.5)	162 (100)		
		No	7 (1.5)	302 (63.8)	164 (34.7)	473 (100)		
	Third to Final Year	Severe	0 (0)	7 (23.3)	23 (76.7)	30 (100)	193.820	<0.05
		Moderate	2 (100)	0 (0)	0 (0)	2 (100)		
		Mild	157 (99.4)	1 (0.6)	0 (0)	158 (100)		
		No	31 (88.6)	2 (5.7)	2 (5.7)	35 (100)		
4.	Army Medical College	Severe	0 (0)	7 (30.4)	16 (69.6)	23 (100)	202.071	<0.05
		Moderate	1 (0.9)	36 (97.3)	0 (0)	37 (100)		
		Mild	60 (38.7)	80 (51.6)	15 (9.7)	155 (100)		
		No	156 (75.4)	36 (17.4)	15 (7.2)	207 (100)		
	Fauji Foundation medical college	Severe	0 (0)	0 (0)	7 (100)	7 (100)	183.466	<0.05
		Moderate	3 (5.5)	39 (70.9)	13 (23.6)	55 (100)		
		Mild	131 (79.4)	32 (19.4)	2 (1.2)	165 (100)		
		No	149 (49.5)	133(43.5)	21 (7)	301 (100)		

Discussion

Individuals indulged in Internet gaming are unable to resist the temptation to play the games although they are fully aware of the negative consequences. Despite all of their efforts they are unable to quit their habit while social and occupational functioning keeps deteriorating.

In our study participants were young medical students and their majority belonged to first couple of academic years. In this study more than half of the participants did not show disorder of internet gaming while forty six percent of participants scored for internet gaming disorder which is contrary to the results observed in systematic review done by Wang where eighty six percent showed no addiction to internet gaming and only sixteen percent of participants exhibited addiction to internet gaming.[9]

Our results further reveal that thirty three percent scored mild levels of addiction to internet gaming, these results are in accordance with observation made by Chang where thirty percent were normative gamers and forty two percent were occasional gamers.[10] In this study nine percent experienced moderate levels while three percent showed severe levels of addiction to internet gaming similar to the study results of Chang and Atwan where it was noted that four percent had addictive while twenty two percent exhibited problematic gaming.[10,11] Severity level of internet gaming disorder was noted to be higher ranging from eleven to fourteen percent by Stefani and Fathi in their studies.[12,13]

There is ample amount of evidence that addictive behaviors and dependence of any sort leads to disruption in social and occupational functioning consequently quality of life gets affected. This study observes that quality of life is affected among forty seven percent of participants indulged in internet gaming. It is important to note that out of these forty seven percent only about ten percent were experiencing below average while thirty eight were having average quality of life. These results are similar to the observations made by Fazeli in his study.[14] On the other hand study done by Machimbarrena observes that higher proportion of study population experienced below average quality of life.[15] It is highlighted that more than fifty two percent of participants in this study were enjoying good quality of life contrary to the result of study done by Bhatiaseri where about eighty four percent of participants enjoyed good quality of life.[16]

Three percent of participants with severe indulgence in internet gaming were unable to enjoy good quality of life. Out of these three percent, seventy six percent of participants experienced below average quality of life similarly Teng and Wang in their studies observed notable loss in physical and psychological wellbeing in individuals having internet addiction consequently affecting quality of life.[17] In this study about ten percent of participants scored moderate on internet gaming disorder score out of which four percent enjoyed good life, eighty one percent had average and fourteen percent graded their lives as below average. Phan *et al* observed that most of individuals having mild level of indulgence in internet gaming enjoyed their life from good to average.[18] We observed that thirty three percent scored mild level of internet gaming disorder out of these ninety four percent enjoyed good to average quality of life. Fifty three percent of participants shown to have no disorder of internet gaming out of these ninety three percent enjoyed good to average quality of life as El-Sherbini noted that those who are not having problem with online gaming experience and enjoy better life.[19]

Haddad *et al* found significant correlation between demographic variables, over indulgence in online gaming and life quality. He noted that problematic use of internet is an important health issue that severely affects the psychological wellbeing and quality of life.[20] Stratified data for age, gender study year and college of participants in this study show statistically higher correlation of over indulgence in online gaming with poor life quality (P<0.05).

We intended to ascertain correlation of life quality with the level of indulgence in playing games online. Results clearly highlight that severity of internet gaming disorder is inversely proportional to quality of life.[21] Mental health professionals need to be receptive and aware of the danger and mental health challenges looming round the corner in near future as a result of contagious use of internet in general and inter net gaming in particular.[22] It is also important for the psychiatrist to identify and understand this problem in order to tackle it

proficiently.[23] Policy makers with such an understanding can endeavor for more elaborate planning for more effective and efficient preventive measures to deal this rampant menace in the society.[24]

Conclusion

It can be concluded that over indulgence in internet gaming is related to deterioration in quality of life.

Limitation of Study: Authors acknowledge that this Being Cross sectional design can only determine association but it cannot ascertain the reasons as to how and why over indulgence in internet gaming negatively affects the quality of life.

Acknowledgment: None.

Conflict of Interest: The authors declare no conflict of interest.

Grand Support and Financial Disclosure: None.

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AAB: Idea conception, study designing, data analysis, results and interpretation, manuscript writing and proofreading

SA: Idea conception, study designing, data analysis, results and interpretation, manuscript writing and proofreading

JT: Idea conception, data collection, data analysis, results and interpretation

TBN: Data collection, data analysis, results and interpretation, manuscript writing and proofreading

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