

The impact of mindfulness Apps during COVID-19: An Analysis of Pakistani online gamers

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Abstract

The use of mindfulness Apps is expanding worldwide. This paper aims to explore the impact of Smartphone Apps on the Pakistani Online gamers of *Player Unknown's Battle Grounds* (PUBG) game during pandemic situation such as COVID-19. In this quantitative study, the 1000 Pakistani gamers has surveyed to gather facts on the practicable outcomes of Smartphone Apps on mental health interventions and stage of social anxiety. Results suggest that Smartphone Apps are conveyance device for mindfulness drill, and it has constructive impact on different features of psychological health. For most players, online video games are elementary enjoyment inactivity, though for a minority; the gaming turns into immoderate and is supplementary by means of some tremendous penalties too. The researchers found that the usage of PUBG has increased during the lockdown. Finally, we find a significantly positive relationship between use of mindfulness Apps and lessening of stress.

Keys words: Mindfulness Apps, COVID-19 pandemic, Pakistanis online game players, PUBG

INTRODUCTION

The use of Smartphone Apps is globally expanding with the advancement in Information and Communication Technologies (ICTs). Recent studies have concentrated on online video-games, particularly, for the management of diverse mental health disorders(Wilkinson, Ang, & Goh, 2008).Numerous researchers have operated on offline/online videos games for autistic youngsters. There is some evidence that it has a constructive influence on social indulgent, devotion, receptive language and seeking self-help(Mehroof & Griffiths, 2010). According to Economides, Martman, Bell, and Sanderson (2018),Digital mediums for mindfulness training have become widely available, such as mindfulness Smartphone Apps. In addition, mindfulness Smartphone App can reduce symptoms of depression and stress as well as increase quality of life.

COVID-19 is one of the biggest public health crises world is facing today. This study suggests that by using mindfulness App, PUBG, during the lockdown or self-protecting measures can result in reduction of anxiety and improve mental health conditions and life satisfaction. Research has constantly revealed, online video gaming can carry numerous positive profits-containing mental fitness, cognitive desires, educational welfares and therapeutic treatment(Mamun & Griffiths, 2019). A multi-player online game known as *Player Unknown's Battle Grounds* (PUBG) is a "Battle Royale" game introduced and developed by Bluehole from South Korea(D'Souza, Manish, & Deeksha, 2019). PUBG ranked first on the Chinese iOS download charts at launch and had a combined 70.5 million pre-registrations. Taken together, video game addiction (VGA) may contemporary itself as obsessive gaming, reduced judgments and social isolations and hyper-focus on in-game attainments, to the segregation of other trials in lifetime. Online gaming is a distinctive interactive obsession characterized by habitual and an extreme usage of computer/video games that inhibits with an individuals' tedious life(D'Souza et al., 2019).

After the occurrence of COVID-19 pandemic around the Chinese Spring Festival in Wuhan, China, many people in mainland China and worldwide are at risk and cases of COVID-19 positive is on the rise every passing day and resulted in the global pandemic (Li et al., 2020). Moreover, quarantine can alleviate the risk of the epidemic and the infections. Self-isolation and quarantine is an important public awareness to be raised and henceforward, assessing the effectiveness of such actions is vital for the information of policy makers. Since the seclusion and restrictions on traffic should be continued for an extended period of time until this global pandemic is under control (Li et al., 2020). Particularly, there is a lack of research regarding this issue including participants from the general population. Hence, this study signifies a suitable first phase towards taking benefit of current assets for online video games insinuation of this pandemic COVID-19 in Pakistan. We also wanted to assess how pandemic COVID-19 problems might be allied with exact results on procedures of psychological and physical health via online gaming.

Generally, the research studies conducted so far propose that COVID-19 has settled into pandemic; governments will not be capable to diminish the deaths from corona virus infection. The world noticed what has happened in P.R, China confirmations that social distancing, quarantine and self-isolation of sick people can comprise the epidemic. Through social distancing measures occupied by entities can reduce dissemination by about 60% or less (Anderson, Heesterbeek, Klinkenberg, & Hollingsworth, 2020). To date, no operative antiviral drug or vaccine has expected to be available in the marketplace. Consequently, what is left at current for alleviation is deliberated above the isolation of families, capitals or townships and instructed quarantine. In this backdrop, games are definitely existing online for unrestricted of cost (Alisha & Amrit, 2020). Our study is defensible to appreciate; online gaming actions of adolescents will assistance in recognizing causes, cheering its pervasiveness and usage. This, in turn, online games will be useful in tactics to endorse their fitness and well-being and inhibition platforms.

An upward number of scholars have surveyed that global studies estimation, up to 20% of youngsters and kid's mental health problems. In worst-case circumstances, 60-80% of young people does not obtain any sympathetic of mental health attention or contact any mental health facilities. When assistance is required, it is normally from casual sources i.e. friends, family and peers, somewhat than those of prescribed sources, such as general counselors and psychologists(Shandley,Austin, Klein, & Kyrios, 2010). Furthermore, online info-expands their particular health caution and simplifies entree to face-to-face behavior. There is a must to be planned and pioneering in the transfer of mental health information to young folks that enriches their capability to suitably classify, distinguish and get help for psychological ailments in a routine that is together reachable and non-threatening(Shandley et al., 2010). The objective of this research was to regulate whether playing *Player Unknown's Battle Grounds* (PUBG) could boost defensive factors among players, definitely, mental health, switch to routine and stay connected to their family, friends and peers. The PUBG players must work out how to settle in, find their way around in this pandemic COVID-19, make new friends and they are capable to involve in a complete sort of communications with them.

LITERATURE REVIEW

To date, throughout issues and situations presented during the COVID-19, our study begins through a historic study of forecasts and findings from timely video games literature. The Uses and Gratification Theory (UGT), developed by Elihu Katz and Jay Blumler, provides base to this study. UGT explains the relation between media and media consumers. UGT asserts that people use ICTs to fulfill their wants and needs (Vinney, Cynthia, 2020). It focuses on the outcomes of media use and the social and psychological needs that media gratified. Moreover, our framework opens up possibilities for online video game rehabilitation. In the manifest from the previous literature, adolescents and teenagers have been the first objectives of beneficial video games. Grown-ups are at

ease with direct conversation, while numerous youngsters scrap to prompt themselves with therapeutic stations i.e. video games(Wilkinson et al., 2008). Various comprehensive summaries of the literature, Wilkinson verified a randomized measured sample of computer-mediated cognitive therapy in mature patients with insignificant cognitive deficiency. However, the mediation group accomplished a computer-based enlightened listening workout that has planned to enhance education and memorial for hundred minutes per day. Presently, there has perceived new guidelines in investigation with emerging online video games.

Although there is a comparatively extraordinary revenue rate for mindfulness intervention Apps accessible in App store with cooperatively lots of downloads(Flett, Hayne, Riordan, Thompson, & Conner, 2019). To our knowledge, time loss is a game related consequences and the indication of time cost being advantageous to many gamers has been describe also in the literature. This fundamentally means, for somebody playing online game steadily build up the expanse of time they spend online involved in the behavior(Griffiths, 2010). They also debated that players had no other guarantees; they had the time and the elasticity to play online games for much extended stretches of time. It facilitated them configuration their empty days. Furthermore, to play the online game such as *World of War craft* for a much extensive time was basically a social movement as has been recognized somewhere else in the literature(Griffiths, 2010). The first segment of our study absorbed on time spent using the internet and playing online games i.e. PUBG.

There is mounting evidence that numerical channels have extensive reaching potential for refining public health. Further, several latest studies recommend that mindfulness training distributed via a Smartphone App can decrease indications of depression and can rise the quality of life as well(Economides et al., 2018). The similar researchers also stated that by witnessing thoughts and emotional state as mental events, *Headspace* definitely affects irritability, stress and comparative to

an active control. Economides argued that eight weeks time-consuming, group-based interventions comprise a recipe of mindfulness, cognitive techniques and further stress reduction, with up to 45 min of home-based rehearsal per day. Moreover, to play *Headspace* for ten days can expand happiness, and decreases depressive symptoms, although over a small period of time and those interested to become happier (Flett et al., 2019). As Chappell, Eatough, Davies, and Griffiths (2006) highlighted that a lot of time is devoted by a mainstream of video game players. However, there have been very limited studies inspecting online video games. In backing of this, the present study directed to assess the usefulness of mindfulness based Smartphone Apps (PUBG).

For most people, internet games are recreational tools and leisure time, without any problems involved. Additionally, it has been specified, computer games might deliver distraction or an discharge from painful circumstances or worries (Wenzel, Bakken, Johansson, Göttestam, & Øren, 2009). *Everquest* is an online video game that seems to achieve specific requirements i.e. societal interaction with cybernetic community. Players can participate in battles, heroic quests and dedicated missions (Chappell et al., 2006). This study suggests that 15% of gamers appealed to play *Everquest* for above 50 hours/week. Many research studies on computer game playing are tend to focus on adolescents. Several researchers had inclined headed for the more negative aspects such as extreme play and habit. To summarize, research on young computer video game playing recommends that anybody who pledges this much time possibly addiction to the game and turns the risk of forgoing other duties too (Chappell et al., 2006). The emphasis of our research was to observe how personalities perceived and made wisdom of *Player Unknown's Battle Grounds* (PUBG) in the circumstance of their lives.

In one of the few studies available, playing *Tetris Computer Game* for 3 months enriched cognitive functioning and brain in teenage girls. It is also important to note the usage of video base relaxing applications will enlarge in the latest future as they suitable what has turn into to the

people's cognitive use of online statement through widely held video games software. It has the prospective to convey us closer together (Barak & Grohol, 2011). In this respect, it looks safe to predict, the use of *Player Unknown's Battle Grounds* (PUBG) could help them make new friends and stay connected to their family members. On the other hand, health related issues i.e. headaches and physical pain were found to be helped by online video games. According, our study hypothesized that stressed due to pandemic COVID-19 releases, by playing *Player Unknown's Battle Grounds* (PUBG). The present-day research pursues to enlarge and build upon these previous works, looking not only what is known today grounded upon the literature, but subscription grounded predictions for future mental health mediations through online video games.

According to Lo, Wang, and Fang (2005), public arrogances appear to be in favor of using therapeutic mobile Apps for administration and observing loneliness, anxiety and depression, as long as confidentiality and security is a unease. They also established online games addicts show, nearby feelings for unfamiliar person and a high grade of loneliness; they try to escape from realism into the internet. In addition, Brenner surveyed the proposition that people can decline loneliness and depression by educating social relationships through internet announcement. Online game creators generate virtual communities for players in which they can undertake any role they wish and complete missions with other players (Mentzoni et al., 2011). The similar researchers also advocate that Kraut et al. used statistical methods to show that many internet users were prepared to admit their feelings of isolation gone from their online interface. Based on the outcomes reported in the literature and several empirical studies, it is found that there is a gap regarding association between the use of mindfulness Apps on mental health conditions of the Pakistani gamers particularly during the COVID-19. We developed another research hypothesis; Pakistani PUBG group members have an extraordinary amount of loneliness for playing PUBG which consequently mitigate the anxiety.

METHODOLOGY

Participants and procedure

Data were collected over a 2-weeks via chance sample of PUBG players in Pakistan. Over a thousand players participated, but 983 participants accomplished all the questionnaires (824 males, 159 females). The mean age for male contributors was 22.5 years ($SD = 2.3$ years), and for female members, it was 21.6 years ($SD = 7.1$). It should be prominent, while the game PUBG have been considered for individual aged from 16-25(Shandley et al., 2010). Based on our research, we used a structured questionnaire and an online survey to collect data. The website docs.google.com has used to survey participants. According to Chen and Wu (2015), survey respondents can give an honest reply about various deviant behaviors. Thus, we could reasonably argue that a survey design allows us to closer access to Pakistani PUBG players. A link to an online survey has sent out on Facebook, Twitter and WhatsApp groups, asking online gamers to participate in a survey. As data, collection took place over a period of two weeks in March to April of 2020. The questions have framed in such a manner so that to let all the players express freely their caveats and preferences while playing PUBG game. Keeping in mind the months of the year where normally pandemic COVID-19 holidays are at peak in Pakistani schools, colleges and universities. All participants in our study play PUBG game.

Measures

To validate and develop the PUBG Addiction Test (PAT), one thousand participants were selected through random sampling from all the provinces of Pakistan. Finally, 983 respondents have been considered for the research, due to missing data values occurred. Satisfaction with Life Scale (SWLS) has considered to ask participants to level on a 5-point Likert Scale, for measuring mental health and their life satisfaction in pandemic COVID-19. Moreover, the amount of periods and time spent

playing PUBG was together for every participant via a data management structure. Additionally, players were questioned to rate on using five point Likert scale (1= strongly disagree to 5= strongly agree). We incorporated demographics questions on ages, gender, regions and their level of education. Educational level has regarded as low (no high school), high school, bachelor (BSc/MSc) and Masters (MPhil/PhD) degree holders. The descriptive statistical method has used to identify relationships among demographic variables. Participants have also been assured of the confidentiality of their identity responses. Finally, Linear Regression model has been used to test all the predictions in our study.

DATA ANALYSIS

This part of our study examines an online survey, data collection, the usage of PUBG, frequency distributions, correlation and regression analysis.

Descriptive results

There were a higher amount of male respondents countering to the online survey (83.8 percent) associated through the female (16.2 percent), with a mean age of 21.6 years (SD = 7.1). Males playing online games more frequently than females. This outcome is alike to those testified by (Lo et al., 2005). Other significant demographics variables in analysis were gender (Boys, 83.8% (n=824) > Girls, 16.2% (n= 159), Punjab players, 38.6% (n=379) > then the other provinces they belong to, marital status (Single, 83.1% (n= 817) > Married, 16.9% (n= 166), and their education level (Medium/High > Low). Comparison with population data from Statistic Norway (2006) disclosed no foremost modifications in sample assembly by age collection and femininity (Wenzel et al., 2009). Independent sample t-tests has also used to equate by, small against high PUBG players on the variables of their awareness. All the statistical analysis has approved out in SPSS software.

Time Spent Playing PUBG

Among a thousand ever-players, 1.7% did not response the questions concerning PUBG gaming frequency. Therefore, the next analysis comprises data from 983 players. Maximum ever players 20.6% told that they played *Player Unknown's Battle Grounds* (PUBG) only irregularly or less than 1 hour daily on typical. A29.8% (n=203) reported playing \geq 2-5 hours/per day. The proportion playing PUBG \geq 5-7 hours daily was higher among all, with 35.5% (n=349). The amount of time participants reported playing PUBG has restrained by means of a particular piece: "how many hours do you spend playing PUBG per week"? On average, \geq 2 years' participants, 44.6% (n= 438) are playing PUBG on a regular basis. Participants has provided with four ordinal categorical variables to choose from, with options ranging from, Never to more than 7 hours a day.

Correlations Analysis

In our study, correlation analysis is use to see the associations among all the relevant variables. Although, it gives an estimate of the relevancy of all variables but do not reveal us about the purpose. At this stage, authors also used the same methodology and we study the associations of Mindfulness App with other variables (See Table 1).

There is a significant positive correlation between Mindfulness App and stress reliever, satisfaction, loneliness, gain friends and family connection (See Table 1). The results also reveal that there is a significant negative correlation between addiction and routine workout ($r = -.067^*$), mindfulness App and punctual ($r = -.251^{**}$) and YouTube Help and Teamwork ($r = -.296^{**}$). Thus, the more they teamwork the less they will need help from YouTube. The attention of our research has inclined near the more positive features. Such as, this result backing our first research hypothesis(H1), heavy consumers of *Player Unknown's*

Battle Grounds(PUBG) could help them gain more friends than characters who devote very petite time playing online games ($r = .21^*$, $p < .01$). This proposes that a lot of time is spent by a mainstream of PUBG players i.e. 35.5% ($n = 349$).

To our knowledge, Mindfulness-App is a progressively widespread practice intended at improving mental health. It is likewise essential to know that online games are the desired method of interaction for young people. Even though there are hundreds of game apps in app stores and these apps are sponsored via providing health benefits (Flett et al., 2019). In addition, it would be beneficial to know whether these tools are operative over a long period. PUBG is currently available on iOS and android platforms. A finding that support our second research hypothesis (H2) that playing *Player Unknown's Battle Grounds*(PUBG) for a long time in a situation of pandemic COVID-19 reduces depressive symptoms i.e. stress and improve happiness ($r = .11^*$, $p < .01$).

Additionally, the findings of this study indicate that one-third of the player's play PUBG up to 2-hours/per day and one-third play more than seven hrs. *Player Unknown's Battle Grounds* (PUBG) provides the gamers with a tool for satisfying their need for interpersonal relationships. We looked at the situation, pandemic, and loneliness reported as a withdrawal experience by participants that relates to the decline in socialization. People gradually move away from real life peer interaction to only virtual interactions due to pandemic COVID-19. The goal of this study was to confirm that Pakistani *Player Unknown's Battle Grounds* (PUBG) group members have a high degree of loneliness and they co-operate to complete game tasks ($r = .20^*$, $p < .01$). Hence, our last hypothesis (H3) has proved.

Table 1: Inter-correlations matrix of all constructive variables

	1	2	3	4	5	6	7	8	9	10	11	12
MindfulnessApp1	1											
Addiction2	.266**	1										
YouTubeHelp3	.313**	.261**	1									
StressReliever4	.111**	.135**	.004	1								
Loneliness5	.201**	.165**	.023	.38	1							
Satisfaction6	.312**	.323**	.296**	.08	.2	1						
RoutineWorkout7	.311**	-.067*	.142**	.05	-	.0	1					
Punctual8	-.251**	.055	.054	-	.0	-	.4	1				
RegularDress9	.318**	.002	.148**	-	.0	-	.5	.16	1			
GainFriends10	.211**	.342**	.341**	.21	.2	.3	.1	.1	.33	.490**	1	
FamilyConnection11	.012**	.297**	.197**	.11	.2	.1	.4	.4	.33	.490**	.170**	-
TeamWork12		.140**	.145**	-.296**		.083**		.256**	.354**			.004

** . Correlation is significant at the 0.01 level (2-tailed)
 the 0.05 level (2-tailed)

*.Correlation is significant at

Regression Analysis

Although, correlation analysis does not analyze the relationship, it just shows the association between variables. However, linear regression model has been used in our study to test the relationship between variables, and to estimate the reasonable impact of defined variable on the dependent side of the equation.

Table 2: Linear regression model for dependent variables

		Coefficients				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t-test	Sig.
1	(Constant)	-.218	.181		-1.203	0.229
	Addiction	.043	.030	.042	1.447	0.148
	YouTube Help	.199	.029	.194	6.754	0.437
	Stress Reliever	.133	.029	.130	4.629	0.001*
	Loneliness	.086	.031	.082	2.773	0.000
	Satisfaction	.186	.028	.197	6.762	0.005*
	Routine Work-out	.103	.035	.097	2.968	0.351
	Punctual	.052	.031	.057	1.686	0.092
	Regular Dress	.085	.035	.086	2.444	0.000
	Gain Friends	.032	.033	.032	.989	0.001*
	Family Connection	.329	.034	.325	9.764	0.321
	Team-work	.159	.028	.175	5.748	0.000

a. Dependent Variable: Mindfulness App

RESULTS&DISCUSSION

Results on linear regression on the dependent variable has conducted and reported in the appendix. The purpose of running a regression line in this study was to quantify the results. Based on the results, a significant and positive relationship was established between mindfulness Apps and stress reliever ($b = .13$, $t = 4.6$ and $p = .01$). Not surprisingly, the table also

revealed a significant relationship between satisfaction and mindfulness App ($b = .19$, $t = 6.7$ and $p = .005$). In contrast, online video games might afford an escape and distraction from worry, feelings and painful circumstances, taking both psychological and physical benefits (Wenzel et al., 2009). Results demonstrated significant and positive relationships between gain friends and dependent variable. Thus, PUBG players appear to be conscious of the negative consequences of extreme playing, players have to be positive through an introverted experience during COVID-19 pandemic. Based on this research studies and results, it can be concluded that mindfulness App and other variables affect each other. We have faith in that these results can be responsible for direction for future experiments or studies for identifying fundamental relationships among variables that we predicted and many other factors that we did not discover. The overall result is significantly positive.

DISCUSSION

The present study showed that mindfulness App involvements have effectively been used to diminish stress in a circumstance like pandemic COVID-19. In the study among Pakistanis' adolescents, players were typical young with higher education, and males have more to expect to report consistent playing than females. There is, our study spreads a developing body of research examining self-help approaches for accumulative the spreading of mindfulness based interventions, and also advocates that mindfulness exercise conveyed over a Smartphone App, has the prospective to advance features of psychosocial good fortune. However, earlier examination studies have credited decreases in stress following mindfulness exercise to increase in dispositional mindfulness and decentering. Thus, considerable forthcoming research is desirable before definitive assumption can be strain. Suggestion specifically subsidiary the ability of mindfulness grounded Smartphone shipments has developed from 46 percent to 722 million units (Economides et al., 2018).

Over previous few years, there has been a growing attention in online video games. One of the most widespread between these is *Player Unknown's Battle Grounds*(PUBG). For most people, playing games is an straight forward relaxation action but Smartphone-based mindfulness meditation applications i.e. Apps, prime to an upgrading in mental health(Flett et al., 2019). Regardless of the growing research in the past period, only a few endeavors have done to make available a synthesis of the research discoveries and future leanings over online mental health intermediations. Smartphone applications, mobile statement and gaming have grownup exponentially throughout this time. Consequently, it is being responsible for us greater entrance to a broader population than ever before. While online mental health interventions have the probable to suitable, cost-effective and more dissimilar population than face-to-face interferences or old-style. Our study initiate, there is a strong indication to support future expansion and an effective use of a multiplicity of online mental health applications.

CONCLUSION

In conclusion, research into internet video games has gradually improved over the last decade, even though comparatively little research has surveyed the relationship between mindfulness Apps and personality aspects particularly during the crisis situation. The first research question (RQ1) inquires the nature of mindfulness Apps, experiences by Pakistanis' players. Results of a multiple linear regression point out those different traits i.e. stress reliever, satisfaction and gain friends displayed significant associations with online video games. Numerous online video game players pass a lot of time in their preferred virtual worlds. A huge percentage of these video game players are young. With the development of the epidemic COVID-19, our discoveries deliver support for the hint that there is still a number of population, who has exposed to virus without any clinical symptoms. Thus, we encourage the people to be self-protective, and engage themselves on mindfulness Apps until the epidemic is totally under control.

Since, the COVID-19 outbreaks in Wuhan, P.R. China, the cumulative number of confirmed cases in Pakistani is increasing every-day, and a large number of populations are at risk all over the world. Self-isolation at home can alleviate the risk of the epidemic and the infections(Li et al., 2020).Thus what is left at current, intentional and above mandated quarantine and the time spent by young people on online gaming directly influences their cognitions and mental health(Alisha & Amrit, 2020). It will be supportive in tailoring effective learning, plans or inhibition databases to endorse their mental health, and well-being. In Pakistan, the rising number of young population is addicted to online gaming. In this backdrop, our study further tested the relationship between mindfulness App and mental health (RQ2). Results indicated, there is a significant and positive relationship between mental health and mindfulness App ($b= .13$, $t= 4.6$ and $p= .01$). For more details, see Table 2.

At the end, it appears that the thoughts behind online clinical work and the more elementary perception receive insufficient consideration i.e. broad conceptualization is quiet misplaced. Little research struggles have been completed and little devotion has given to examine the belongings of mental health interventions and internet maintained health. The consequences of our research essential to regarded with its limitations in mind too, precisely; a lesser amount of female participants, and the study sample was small. As gender, differences in games have also established in previous studies. This finding is alike to those conveyed by Lo et al. (2005), males playing online games more frequently than females. It should be taken care of in future research.

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