

SCREEN TIME BEYOND GAMING AND SOCIAL MEDIA: EXCESSIVE AND PROBLEMATIC USE OF OVER THE TOP (OTT) PLATFORMS AMONG COLLEGE STUDENTS DURING COVID-19 PANDEMIC

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received: 18.1.2021

revised: 1.7.2021

accepted: 12.7.2021

SUMMARY

There is a gap in existing literature regarding Over the Top (OTT) platform use contributing to the excessive and problematic screen time. We aimed to assess OTT platform use among college students and its associations with increased screen time, mental well-being, COVID-19 related anxiety and personality traits. A total of 1039 students from a college in India were invited to participate in this web-based survey. A majority of participants used OTT platforms regularly. Subscription to paid OTT platforms, poor mental well-being were associated with problematic OTT use; whereas personality trait of conscientiousness seemed to offer protection against problematic OTT use.

Key words: COVID-19 – behavioural addiction - screentime

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INTRODUCTION

Excessive screen time has been reported to be associated with myopia, obesity, high blood pressure and insulin resistance. Some of the published reports suggest a positive correlation of screen time with depression and negative correlation with psychological well-being (Costigan et al. 2013). The stress faced by different population groups consequent to COVID-19 pandemic has been widely reported (Rana 2020, Rigucci 2020). Also, the potential adverse impact of the excessive screen time among professionals in the recent times has been highlighted (Bandyopadhyay et al. 2020).

The concerns about potential adverse consequences of increased screen time among the students has been widely expressed both during and after the COVID-19 lockdown periods (Nagata et al. 2020). However, the focus of these studies on screen time has either been on digital education due to school closure or recreation through social media use and gaming. There is a gap in existing literature regarding OTT platform use contributing to the excessive and problematic screen time.

There was an upsurge in Over the Top (OTT) platform use in India during COVID-19 pandemic. This was reflected with increase in application downloads, subscriptions, paid viewership and number of daily active users (Kaushal 2020). It has been predicted that the increase in the usage of OTT platforms would continue post lockdown as the 'lockdown behaviour' is likely to persist as part of this new lifestyle.

However, limited research has explored the impact of COVID-19 pandemic on the use of OTT platforms among students. We aimed to assess OTT platform use among college students and its associations with increased screen time, mental well-being, COVID-19 related anxiety and personality traits.

SUBJECTS AND METHODS

A total of 1039 students who enrolled in the first year of their courses at a private college in India were contacted through Email and/or WhatsApp messenger, and were invited to participate in this web-based survey. Since the on-campus classes had been suspended and students had moved to their respective home towns the target population was accessible through online channel only during this time-period. Students were sent a total of three reminders with a gap of seven days in between the two reminders. The study protocol was approved by the Institute Ethics Committee (IEC-683/03.07.2020, RP-55/2020).

Assessment tools

Information was gathered on socio-demographic details and screen time. We developed a composite item checklist called Problematic Over The Top Platform Use Itemlist (POTTPUI) on the lines of DSM 5 criteria for a behavioural addiction like internet gaming disorder. It comprised of nine items with each one of them

corresponding to a distinct DSM 5 diagnostic criteria. The items had face validity and construct validity due to correspondence with criteria of the gold standard diagnostic system. This approach has been used by other researchers previously to assess problematic smartphone use, screen media use whereby the DSM-5 criteria for gaming disorder were adapted and used (van den Eijnden et al. 2016). WHO well-being index was used to measure the mental well-being. Five questions were asked to explore the fears or worries about getting or spreading COVID-19 infection, and frequent information checking and reassurance seeking behaviours related to COVID-19. Each of them were self-rated on a five-point Likert scale. The total score ranged between 5-20, with higher scores corresponding to a greater degree of COVID-19 related anxiety. The 10 item Big Five Inventory (BFI-10) was used to assess personality traits of the study participants.

Data Analysis

The data were analysed using the Statistical Package for Social Sciences software, version 23.0 (SPSS, Chicago, IL, USA). The bivariate association between OTT platform use and other variables was examined using inferential statistics. Multivariate analysis was performed using the binary logistic regression with problematic OTT platform use as dependent variable. The variables found significant in the bivariate analysis were entered as independent variables in a backward stepwise logistic regression to determine the most parsimonious model. A p-value of less than 0.05 was considered statistically significant for all the tests.

RESULTS

Out of the 1039 students invited to participate the response rate was 25.12%. Among them 29 students did not consent. Thus, final analysis included data from 232 students. Around 60% of the students were female (n=138). The median age was 18 years.

A large majority of participants used OTT platforms regularly (n=216, 93%). Nearly a third of the participants used only one OTT platform (n=68, 29.3%), and a fourth of them used four or more platforms (n=57, 24.5%). Nearly half of them had one OTT platform subscription (n=104, 44.8%), and a tenth of them had subscribed to four or more (n=27, 11.7%). About three-fourth reported to have indulged in binge-watching behaviour (n=175, 75.4%). Around 80% of the participants reported streaming videos for entertainment was important reason for increase in screen-time. The change in screen-time following the COVID-19 pandemic was a median increase of 240 (120-300) minutes/day. The mean WHO well-being index score was 13.7 (SD 5.3), and the mean COVID-19 related anxiety score was 10.15 (SD 4.95).

The score on POTTUI was normally distributed. It had a mean value of 19.20 (SD 6.86), and the Cronbach alpha value for the scale was 0.85 (CI 0.83-0.88) suggesting a good internal consistency. The POTTUC score was significantly negatively correlated with WHO well-being index score ($r=-0.314$, $p<0.001$), and positively correlated with COVID-19 related anxiety scale score ($r=0.148$, $p=0.024$). There was a significant negative correlation with the personality traits of extraversion ($r=-0.162$, $p=0.013$), agreeableness ($r=-0.158$, $p=0.016$) and conscientiousness ($r=-0.402$, $p<0.001$) and a positive correlation with neuroticism ($r=0.2$, $p=0.002$). The differences between the group of problematic OTT platform users and non-problematic OTT platform users is described in the Table 1.

Multivariate regression analysis showed that number of paid OTT subscriptions were risk factors for high OTT use [adjusted OR 1.56 (1.06-2.28)] and the personality trait of conscientiousness [adjusted OR 0.47 (0.31-0.72)] and mental well-being [adjusted OR 0.86 (0.76-0.96)] were protective. The overall regression model was statistically significant (Chi Square =35.47; $p<0.001$ and explained 31.9% [Nagelkerke R^2] of the total variance observed in problematic OTT use among study participants.

DISCUSSION

A large proportion of students in the current study used OTT platforms regularly, with three- fourth of the students reporting binge watching. Panda and Pandey have argued that binge watching could be an addiction, drawing parallels with binge drinking and binge eating (Panda & Pandey 2017).

The participants with problematic OTT use had greater number of paid subscriptions to OTT platforms in the current study. A recent publication that explored the trend of OTT use among the students found that the respondents were not affected by the pricing structure of the OTT platforms (Mathew 2020). We found students with high OTT platform use had scored significantly lower on the scale score representing the trait of conscientiousness. A study by Govaert (2013) found that college students having a tendency for excessive binge-watching seemed to be also characterised by a higher level of neuroticism and a lower level of conscientiousness as compared to those who did not binge watch (Govaert 2013).

Further, those with problematic OTT platform use had poorer mental well-being. This is in line with findings of another recent study assessing the psychological effects of binge watching, which reported significantly greater level of depressive symptoms in those who binge watched videos (Azza 2017). Boudali et al. (2017) suggested watching videos as a way to reduce or cope with symptoms of anxiety and depression rather than a source for causing or perpetuating emotional difficulties in them.

Table 1. Comparison of the profile of study participants with problematic and non-problematic OTT use (N=232)

Variable	Problematic OTT Use (n=20)	Non- Problematic OTT use (n=212)	p value	β
Age	18.15 (0.67)	18.54 (1.2)	0.145	
Gender (female)	16 (80)	122 (57.55)	0.060	
Genre				
Movies	3	47	0.58 (Fisher's Exact)	
Webseries	9	113		0.480
Number of OTT				
Used	3.2 (1.58)	2.49 (1.48)	0.043*	0.133
Paid for	2.6 (1.14)	1.94 (1.18)	0.017*	0.156
Bingewatching	19 (95)	156 (73.58)	0.031*	0.140
WHO Well Being Index	9.4 (5.14)	14.1 (5.14)	<0.001*	-0.250
COVID Anxiety Scale Score	11 (5.57)	10.07 (4.89)	0.421	
BFI Personality Scores				-0.298
Extraversion	5.5 (2.37)	6.21 (1.85)	0.112	
Agreeableness	6.55 (1.90)	7.25 (1.72)	0.084	
Conscientiousness	4.6 (1.09)	6.15 (1.42)	<0.001*	
Neuroticism	6.55 (1.93)	6.07 (1.83)	0.266	
Openness	5.85 (1.87)	6.35 (1.18)	0.091	

The OTT use behaviour was not associated with COVID-19 related anxiety in the current study. A similar observation was made in a previous study by our group when we found that the COVID-19 related anxiety was not related with increase in gaming behaviour (Balhara et al. 2020). Perception of a stressful situation as controllable or uncontrollable impacts the response among the students (Akgun 2004). It is likely that COVID-19-related situation was perceived as uncontrollable by the study participants and they did not engage in OTT use as a coping strategy.

There are certain limitations of the current study. This was done in single college located in north India and caution should be exercised while generalizing the study findings. The increase in OTT platform use could be a temporary phenomenon during the times of COVID-19 pandemic and it remains to be seen if the same shall revert back to the pre- COVID pattern once the pandemic is brought under control and academic activity returns to the campus. However, given the discussions around the new 'normal' many of the changes that we have made in the past few months could well get integrated into our lifestyles.

There are certain strengths of the current study. While most of the literature frames problematic watching of streaming media in terms of 'binge watching', we framed the problem in broader terms and found similar findings as found with binge watching. Further, the present study to the best of our knowledge is the first study to have systematically explored the effect of COVID-19 pandemic and related anxiety on the OTT using behaviours.

CONCLUSIONS

OTT platform use among college students appears to be ubiquitous, especially during the times of COVID-19 pandemic. Subscription to paid OTT platforms, poor mental well-being were associated with problematic OTT use; whereas personality trait of conscientiousness seemed to offer protection against problematic OTT use. Future studies with a more representative and larger study sample are needed to confirm and better characterize the findings from the current study.

Acknowledgements: None.

Conflict of interest: None to declare.

Contribution of individual authors:

Dheeraj Kattula, Yatan Pal Singh Balhara, Surekha Chukkali, Swarndeeep Singh, Rachna Bhargava & Ragul Ganesh were involved in design of the study, interpretation of data, manuscript writing.

Dheeraj Kattula & Yatan Pal Singh Balhara were involved in literature searches and analyses.

Dheeraj Kattula was involved in statistical analyses.

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