



MENTAL HEALTH OUTCOMES AMONG MANAGEMENT EDUCATION STUDENTS: AN INTERVENTIONAL STUDY

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Abstract:

Students need to be mentally healthy to cope with the rigours of academic life and thereafter in their careers. Mental health outcomes can be modified through various interventions, enhancing the productivity. This study explored the impact of a six-month intervention among Management education students through combination of Jacobson's progressive muscle relaxation technique, breathing exercises, videos, weekly reminders and two-monthly follow up sessions. Young's Internet Addiction Test and DASS-21 scale were to quantify outcomes. Among the students, post- intervention there was a significant fall in number of students with severe to extremely severe depression though the reduction for anxiety and stress was insignificant. Hence including regular mental health interventions in management education is necessary to change behaviour and practices.

Key words: Mental Health; Interventions; Management education

Introduction

Mental health outcomes can be favourably altered by Behaviour Change Communication (BCC) interventions as demonstrated in numerous studies ¹⁻⁵. Simple interventions such as Jacobson's progressive muscle relaxation technique, breathing exercises and meditation are affordable, easy to learn and need limited amount of time. Hence these can be tested in student population to understand their effectiveness. These exercises can enable individuals to decrease stress levels, help in maintaining overall relaxation and enhance overall wellbeing of individuals^{3,4}. Effects of stress and negative emotions have been shown to be counteracted by various forms of meditation, relaxation, and breathing techniques⁶

Jacobson's relaxation technique developed by Edmund Jacobson in 1920s ⁷ is popular as it is easy to teach and learn even on a mass scale. It can relieve depression, stress, anxiety and boost self-

confidence⁸⁻¹⁰. This method requires participants to actively contract muscles to create tension and progressively release them till complete relaxation is achieved^{11,12}. Muscle relaxation leads to relaxation of mind due to complete relaxation of body parts, preventing the generation of negative thoughts and emotions^{8,13}.

Breathing exercises are low-cost, applicable in multiple settings without requiring any equipment or devices, can be practised long-term and are free from side effects^{3,4} (Fincham et al., 2023; Cuijpers et al., 2023). They can be considered as first-line as well as supplemental treatment for mental health disorders such as stress, anxiety, depression, and some emotional disorders⁶.

It is feasible to include exercises such as Jacobson's progressive muscle relaxation technique and breathing exercises in intervention strategies. These promote mental and physical health, are also cost-effective and time efficient and thus can be evaluated among student population to understand their effectiveness.

There is a paucity of studies which have investigated the effects of simple interventions on health status of students pursuing management education. The current study hypothesises that simple short-term interventions for mental health can improve mental health outcomes.

Methodology

Research design:

The research employed an interventional study design and was conducted to explore the impact of simple short-term interventions on digital behaviour and its influence on mental health of students.

Participants:

The population selected in the current study included management education students. The participants were recruited randomly from a B-school in Mumbai. The eligibility criteria were as follows: (1) A full-time B-school student. (2) Not participated in any interventions for mental health in the past 6 months. (3) Agreed to give consent for participation in the study. They could withdraw from the study at any time in between without any repercussions. Students who declined to participate in the study and those who were already enrolled in some mental health programs were excluded from the study. A total of 126 students signed up for the study.

Study Instrument and Data collection:

Pre-test questionnaire:

The instrument used was an extensive pre-tested and semi-structured questionnaire of approximately sixty questions. The questions included were a combination of open-ended and close-ended questions with Likert scale. The self-reported questionnaire was divided into sections. Section 1 comprised of questions related to demographics of participants.

Section 2 imbibed questions of Young's Internet Addiction test (IAT). This test consists of twenty items related to internet usage and categorises Internet addiction in Mild, Moderate and Severe categories¹⁴.

Section 3 comprised of questions for Depression Anxiety Stress Scale (DASS-21) scale which comprises of twenty-one items. Higher scores indicate more severe psychological problem¹⁵. This scale has been verified among Chinese students and has displayed good reliability and validity in studies.¹⁶⁻¹⁸

The pre-questionnaire was circulated to the participants through Google forms after giving clear instructions. Though the questionnaire was online, students were given dedicated time and physically supervised at the time of administration of questionnaire, enabling solving of any queries.

Intervention:

A detailed intervention plan was formulated and implemented over a period of six months. The intervention included four components:

1. Initial Structured Awareness session: The initial session, designed for awareness regarding digital behaviour and its influence on mental health outcomes was conducted by a qualified psychiatrist. Students were taught a combination of various exercises to enhance mental and physical health

relaxation techniques. These included Jacobson's progressive muscle relaxation technique, breathing exercises, journalling and meditation. The students were told to practise these exercises daily for a period of 20 minutes.

2. Weekly brief reminder sessions: To ensure adherence, every week students were met physically and encouraged for regular practice.

3. Two structured Follow-up sessions: to reinforce learnings of the initial session After the initial session, two structured follow-up sessions were conducted with students at an interval of two months. These sessions were designed to reinforce the learnings of the initial session and motivation to practice the exercises taught. The participation of students was monitored, and full attendance was ensured.

4. Circulation of educational online videos regarding mental health exercises: In addition, educational tools such as short duration YouTube videos and video links of exercises were also shared with students as supplementary material for reference.

Post-test Questionnaire:

After a period of six months the same questionnaire was administered to students again via Google Forms. Their responses were recorded. There was no attrition as compared to the pre-test questionnaire.

All participants completed the Pre-test Questionnaire, attended the initial session, the two-monthly follow-up sessions and completed the Post-test questionnaire at the end of six months.

Approval from Ethics Committee:

Prior approval from Institutional Ethics Committee (IEC) for Biomedical and Health Research of D. Y. Patil Deemed to be University School of Medicine was obtained at the beginning of the study. [Registration #: EC/NEW/INST/2019/473 (DHR, MOHFW, Govt. of India)]. The research conforms to the outlined principles in the Declaration of Helsinki.

Statistical Analysis:

Responses were analysed descriptively. Categorical variables were identified and analysed using frequencies and percentages, while continuous variables were identified and analysed using mean and standard deviation Data was analysed using Microsoft Excel 365 and PSPP (version 2.0.0-g5b54d1).

Results and Discussion

The analysis incorporated data from 126 management education students. The retention rate was 100% and no student dropped out of the intervention. Responses obtained from these 126 students for both pre- and post-test questionnaires were included in the final analysis. The data collected from both the phases of data collection were coded and entered in Excel 365, SPSS (version 28) and PSPP (version 2.0.0-g5b54d1) software for analysis and interpretation.

Demographics:

Table 1 summarises the demographic characteristics of participants. More than half (67.5%) were between 20-25 years of age. Proportion of females was slightly more (64.3%) as compared to males (35.8%). More than half (63.5%) of students resided away from families. There was an equal representation of students in first year (50.8%) and second year (49.2%) of coursework.

Table 1: Participant descriptive characteristics

Characteristic	Categories	Frequency (n)	Percentage
Age	20–25	85	67.5%
	25–30	40	31.7%
	30–35	1	0.8%
Gender	Female	81	64.3%
	Male	45	35.8%
Year of Study	First Year	64	50.8%

	Second Year	62	49.2%
Permanent Place of Residence	Mumbai & Mumbai Metropolitan Region (MMR)	46	36.5%
	Outside Mumbai & MMR	80	63.5%

Correlation Analysis between Internet Addiction and DASS scores:

The online exposure of students was categorised as per Young's Internet Addiction Test (IAT). Correlation analysis was done at both the time points of survey. As seen in Table 2, there is a significant medium positive relationship between IAT score and DASS-21 scores of depression, anxiety as well as stress, at pre-intervention phase as well as post-intervention phase. This is in line with previous studies by Al-Garni et al. (2025) in university students of Saudi Arabia, Mohamed et al. (2025), Gao et al. (2024), Thorell et al. (2022), Hoying et al. (2020) at Ohio University and Boer et al. (2020b), wherein a positive correlation was observed between internet addiction and mental health disorders of depression, stress and anxiety¹⁹⁻²⁴.

Table 2: Correlation Between Internet Addiction (IAT) Score And DASS-21 Scores

Parameters	IAT Score	Depression score	Anxiety Score	Stress Score
Pre-test (N=126)				
Mean ($\bar{X} \pm SD$)	42.98 $\pm$ 16.87	15.97 $\pm$ 10.96	15.65 $\pm$ 10.18	15.89 $\pm$ 09.16
r	-	0.464	0.456	0.469
p value	-	*0.001	*0.001	*0.001
Post-test (N=126)				
Mean ($\bar{X} \pm SD$)	43.43 $\pm$ 15.93	14.50 $\pm$ 10.23	14.69 $\pm$ 09.90	15.74 $\pm$ 08.85
r	-	0.430	0.457	0.486
p value	-	*0.001	*0.001	*0.001

By Spearman's Rho correlation coefficient

*Significant

Sleep Patterns:

Sleep patterns were insignificantly affected post-intervention as seen in Table 3. At pre intervention, only one-third of (32.5%) of the participants had 7-8 hours of sleep daily. At post intervention, there was an insignificant rise (38.9%) in this proportion. The proportion of participants who feeling well-rested often to always woke up at pre-intervention (27.8%) insignificantly rose to 31.8% post intervention. Thus, it may be speculated that intervention was of somewhat beneficial to some of the students, and further study over a longer duration with a more stringent monitoring and counselling may be helpful.

Table 3: Sleep patterns

Characteristic	Categories	Pre-intervention		Post-intervention		p-value
		Frequency (n)	Percentage	Frequency (n)	Percentage	
Number of hours of sleep daily*		6.25 (0.93)		6.41 (1.08)		
	Median (min-max)	6 (4-8)		6 (3-9)		
	Mode	6		6		
Number of	<7	65	51.6%	65	51.6%	

hours of sleep daily, frequency distribution*						
	7-8	41	32.5%	49	38.9%	0.552 (NS)
	9	0	0.0%	1	0.8%	
Experience difficulty in falling asleep	Never	15	11.9%	10	7.9%	
	Rarely/ Sometimes	90	71.4%	89	70.6%	0.889 (NS)
	Often/ Always	21	16.7%	27	21.5%	
Wake up feeling well-rested	Never	8	6.3%	6	4.8%	
	Rarely/ Sometimes	83	65.9%	80	63.5%	
	Often/ Always	35	27.8%	40	31.8%	0.782 (NS)

*n=106 for pre-intervention and n=115 for post-intervention

Changes in proportion of cases with Depression, Stress and Anxiety category after intervention:

Table 4 reveals that in this study at pre intervention, almost one-third (37.3%) of the students had severe to extremely severe Depression category. After post intervention, this proportion showed a significant fall to 23.0%. This can be attributed to the intervention resulting in beneficial impact on the students. These findings are in line with various studies employing Jacobson's relaxation techniques for relieving an extensive range of physical and psychological symptoms such as depression, stress, mood disorders, anxiety, pain and self-confidence^{8,25}.

However, for anxiety, at pre intervention, almost half (48.4%) of the cases had severe to extremely severe anxiety. After post intervention, this proportion showed an insignificant fall to 41.2%. This decrease although not statistically significant, is still numerically substantial and attributable to the intervention. At pre intervention, 19.0% of the cases had mild Stress category. After post intervention, an insignificant fall was seen in this proportion (17.5%). This may be attributed to the fact that though we did conduct three sessions and gave weekly reminder, students were responsible for their own daily practice.

This too is in line with various studies. In study by Zhenwai D et.al. (2025) among Chinese students, wherein mindfulness techniques were used in intervention, reduction in stress and anxiety at follow-up was not statistically significant, similar to study among healthcare students in Finland by Repo et.al (2022)^{26,27}. In study employing acceptance and commitment therapy among students in Stockholm, similar findings were seen by Frogeli et al. (2015). Avitsland et al. (2020) in a 29-week intervention and Smith et al. (2018) in a 10-week intervention program also could not observe any changes in mental health indicators of adolescents²⁸⁻³⁰.

The findings of the current study intriguingly suggest that the current interventions i.e. regular awareness sessions, videos and verbal encouragement and motivation for regular mental health exercises did produce a slight beneficial effect for few outcomes, though it was not statistically significant. As the students were required to practise daily by their own self, self-drive. It may be interpreted that voluntary participation needs to be complemented with a compulsory element for better outcomes. Though students can be made aware regarding the negative effects of excessive

digital exposure, in today's technology-driven world it may be a challenge to curb this digital presence.

This study enhances the existing available literature by emphasising the changes in digital behaviour and need to integrate mental health enhancement in the daily routine lives of B-school students.

Table 4: Changes in proportion of cases with Depression, Stress and Anxiety category after intervention

Category	Proportion of cases (N = 126)			
	Pre		Post	
	No.	%	No.	%
Depression				
Normal	38	30.2%	43	34.2%
Mild	13	10.3%	10	07.9%
Moderate	28	22.2%	44	34.9%
Severe	29	23.0%	14	11.1%
Extremely Severe	18	14.3%	15	11.9%
P value (Depression)	*0.013			
Anxiety	Pre		Post	
Normal	31	24.6%	35	27.8%
Mild	07	5.6%	06	4.8%
Moderate	27	21.4%	33	26.2%
Severe	11	8.7%	12	9.5%
Extremely Severe	50	39.7	40	31.7%
P value (Anxiety)	0.254 (NS)			
Stress	Pre		Post	
Normal	60	47.6%	60	47.6%
Mild	24	19.0%	22	17.5%
Moderate	20	15.9%	22	17.5%
Severe	20	15.9%	19	15.1%
Extremely Severe	02	1.6%	03	2.4%
P value (Stress)	0.744 (NS)			

By Chi Square Test

*Significant

Strengths and limitations

The strengths of our study were the use of validated scales in questionnaire enabling accurate quantification. The rigour of intervention was ensured by detailed planning and execution. However, there are few limitations as well. To enable regular monitoring during intervention, the sample size was restricted to a single college. Further studies can involve multiple colleges across locations.

Conclusion and Recommendations

This study contributes to the existing literature by emphasising the significance of impact of digital exposure on health and understanding the need for integration of targeted interventions to reduce its negative impact on mental health status of management education students. While online tools offer various benefits such as keeping oneself updated with industry trends, communication, recreation etc., it is important to manage digital behaviours carefully to avoid potential harmful effects of prolonged exposure on mental health. Awareness regarding digital exposure and their relationship with mental health issues is of utmost importance.

The presented findings can be utilised to develop robust interventions which target modifications in the digital behaviour of management education students and enhance mental well-being.

The current study employed interventions wherein awareness sessions were conducted, and students were taught exercises in person by trained doctors as well through shared videos over a period of six months. The students were closely monitored and encouraged to perform the exercises taught to them. Queries were promptly resolved. Though they were regularly encouraged, self-motivation formed the basic and necessary trait for this intervention. The findings of our studies highlight the need for a model which includes mandatory mental health initiatives. Designing of academic environment of students and tailoring it for enhancing the overall wellbeing of students can be implemented by a robust structured curriculum. Inclusion of regular initiative such as awareness sessions, daily dedicated time slots for mental health exercises, availability of qualified assistance for mental health issues,

The instructional delivery needs to be interesting and capable of stimulating student participation. The central role of students is crucial as their wholehearted involvement is necessary. Seminars, workshops and reflective dialogues can involve innovative tools such as gamification and incentivisation to promote student engagement.

Faculty too need to be sensitised regarding this important issue. It is necessary to incorporate mental health education in daily teaching plans to make them more contemporary. This structure approach will play a key role in enhancing well-being and productivity of students, laying foundation for a successful future.

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