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RESEARCH ARTICLE

BUILDING PSYCHOLOGICAL HEALTH IN UNDERGRADUATES WITH THE APPLICATION OF A CLASSROOM-BASED POSITIVE PSYCHOLOGY EDUCATIONAL INTERVENTION: A PILOT STUDY

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ABSTRACT

BACKGROUND:

Stress and depression have been increasing among undergraduates in India. The psychological wellbeing of undergraduates in India has become a critical focus of attention for the education community. Evidence shows that positive psychology interventions can be effective in enhancing psychological wellbeing and may help prevent stress and depression in undergraduates. In this study, we aimed to explore the potential effect of positive psychology educational interventions on improving the psychological health of Indian undergraduates.

METHODS:

A 10-week classroom-based positive psychology educational intervention was conducted at the Bhopal School of Social Sciences, Undergraduate Institute (MP), India. Institute undergraduates in their second and third years participated. The participants' self-reported data on psychological health and self-efficacy were collected and analyzed at pre-intervention (n= 45) and post-intervention (n=45) times. The instrument's reliability and validity were checked with the help of SEM (Structural Equation Model) software. The same software was used for data analysis.

RESULTS:

The analysis showed that the psychological health of the undergraduates improved after the intervention. Their mean scores on psychological health and self-efficacy were significantly improved, while the symptoms of stress and depression were significantly reduced.

CONCLUSIONS:

The study highlighted that a positive psychological intervention improves the psychological health and self-efficacy of undergraduates, even mitigating digital fatigue challenges.

KEYWORDS

psychological health, positive psychology educational intervention, positive emotions, self-efficacy, positive relationship

INTRODUCTION

Positive psychology has been established as a major field of knowledge that helps to understand how people live and do well. Martin Seligman started this for the first time and focuses on positive aspects of life instead of negatives, which helps in reducing stress, depression, and anxiety and promotes well-being and self-growth. [1] Positive mental health helps individuals to cope with the normal stress of life; therefore, it positively contributes and is increasingly recognized in policymaking and national mental health programs. [2] Positive mental health interventions focus on strengthening resilience and mental health promotion. [3] Various factors such as family, school, peer group, and academic atmosphere influenced students' learning. [4] Positive psychology intervention has had a significant effect on personal growth, positive thinking, positive relationships, autonomy, environmental mastery, self-acceptance, and many more. [5] The association between positive psychology constructs including academic engagement, motivation, well-being, and mental health has been relatively effectively implemented. [6] Therefore, positive psychology plays an important role in the overall development of children. Constructs such as academic engagement, academic motivation, wellbeing, resilience, social connectedness, growth mindset, and optimism play an important role in education, especially during the time of the pandemic, when the entire education system was disturbed due to the sudden shift from face-to-face to digital learning. Both learners and teachers faced various challenges due to a lack of knowledge of technology and a lack of infrastructure. This is the visible side of the impact in education. However, there is a less visible aspect that concerns psychological wellbeing. But there is also one dark or hidden side of the coin that deals with psychological wellbeing. Due to digital education, learners lose their interest in studies, which creates a monotony in virtual classrooms, especially with reference to application-based subjects, and this situation develops various mental challenges that affect learners' psychological health.[7]

Positive psychology is a theoretical and methodological process that can help people cope with mental health issues with the help of customized intervention programs for different psychological challenges. [8] Traditionally, psychologist has mostly focused on the negative factors like stress, anxiety, depression, etc. that threaten human mental health, but with the emergence of positive psychology, human strengths have also started to be studied, where different positive constructs like happiness, joy, gratitude, positive emotions, self-efficacy, self-esteem, etc. have increased psychological wellbeing. [9] Positive psychological impact extends a person's feelings towards their activeness and enthusiastic behavior; it is also referred to as "positive emotion" and shows a different broadening and attention. [10] It is also associated with the adaptive digital era. [11] Positive emotions are considered a means to enhance psychological wellbeing and are also helpful as the desired outcome of institution-based counselling for learners. [10]

The last five years have witnessed an increase in social media activities that has brought new risks and negatively affected students' academic performance. Academic self-efficacy was identified as a significant construct in determining students' performance. [12] Self-efficacy and learning achievement are positively correlated with each other; it also proved that students with high self-efficacy are better at academic performance. They are ready to take on tasks that are hard and challenging to comprehend. [13] It also determines the subject-wise relationship between English and mathematics. [14] Self-efficacy helps in reducing speaking anxiety and provides a supportive learning environment, which will help learners learn in a stress-free environment. [15] Self-efficacy positively predicts language proficiency and achievement. [16] In collaboration with the problem-solving technique, self-efficacy helps in the motivation and performance of the learners. [17] Emotional arousal enhances self-efficacy, helping students improve their performance in all areas. [18]

Behavioral sciences addressed various research areas such as mental health, mental disorders, counseling, and mental health measurement. [19] There are various measurement tools to measure the effect of an individual's mental health, including the Zung self-rating depression scale, the Minnesota Multiphasic Personality Inventory (MMPI-2), Hamilton Depression Rating Scale (HDRS) and Beck Depression Inventory (BDI). [15] During the lockdown, the most common symptoms of anxiety were linked to a decline in learners' academic performance. [20] To cope with the high-level anxiety, learners required psychological support, which has favorable results. [21] Meditation has also had a significant effect on undergraduate behavior. [22] Psychology and the health and wellbeing of students tend to have pathogenic approaches to mental health and other psychological variables like stigma, stress, etc. [18] It also supports the teaching process. [23] Higher levels

of perceived stress were more likely to be experienced by females, who were unable to focus on academic work [24] due to the prevailing anecdotal view of professional students possessing personality traits that negatively impact their psychological health. [25] Social interventions should be provided during such outbreaks, and university administration should strengthen the cultivation of students' mental health. [26]

The current pandemic has a significant negative impact on the mental health of college students [24] and many of them have lost loved ones and suffered family financial loss. They should be given special attention particular care [27] and providing them with appropriate coping strategies is important to prepare students. [28] Love-kindness meditation has been shown to improve wellbeing in a study based on positive mental health scales among university students. [29] Students' perceptions related to mental health, after measurement, tend to be good for all three aspects of cognition, affection, and communication, with only one statement having the largest negative percentage. [30]

In the present study, we aimed to examine the effects of virtual classroom-based positive psychology interventions on improving psychological health and self-efficacy in undergraduate students. The participants' scores on psychological health and self-efficacy were measured before and after the sessions, respectively.

METHODS AND MEASURES

The positive psychological intervention was designed with regard to the virtual classroom environment for second and final-year undergraduate students of humanities and social sciences at the Bhopal School of Social Sciences, Undergraduate Institute (MP), India. A self-reported questionnaire was developed to measure the effect of the intervention in terms of their psychological health and academic self-efficacy. questionnaire used has 29 indicators (nine indicators based on psychological intervention, ten on psychological health, and ten on academic self-efficacy). All the indicators are correlated by each respective construct, such as indicator 1 from positive psychology intervention, which measures positive emotion. In parallel, indicator 1 from psychology, health, and self-efficacy also measures psychological health and self-efficacy in terms of positive emotion. A pilot study was conducted to check the reliability and validity of the self-constructed tool (Table 1.2).

All respondents were anonymous, except for their academic year and the calendar year, to obtain honest answers as much as possible. To test the effect of the intervention as being identical, a set of interventions was performed. None of the participants reported any previous experiences with positive psychology interventions.

A total of 45 undergraduates in their final year of academic study attended the intervention. With the same sample size, a random section of the same class is also taken as a controlled group. Only participants who completed the entire intervention, assignments, and pre- and post-intervention questionnaires were included in the comparative analysis to determine the effectiveness of the intervention.

Undergraduates who participated in the study were first invited to complete a questionnaire before the commencement of the intervention to collect pre-test data. After collecting the pre-test data from all the participants, an intervention of 10 weeks was executed for the intervention group only. Twenty sessions were completed with different activities. Activities were designed in such a way that they included more participation from the learners' side, though the intervention was provided virtually. It was noticed that the learners enjoyed the activities and interacted a lot. They were very prompt in answering questions and assignments. The most enjoyable activity was the emotional storytelling. All learners narrated their stories very well, and others were connected with the same as the time of the pandemic it left some footprints in everybody's life. The intervention connected everyone emotionally. After the twenty sessions, the intervention group and the control group were again asked to fill out the self-reported questionnaire for the post-test data.

The pre-and post-intervention scores were then compared and analyzed with the help of PLS-SEM software.

Before proceeding further with the collection of data, the researchers first presented the proposal. In front of the research ethics committee of the BSSS IAS for the ethical clearance of the same, and after getting the approval from the Research Ethics Committee of BSSS IAS, the researcher proceeded further with the collection of the data for the intervention. While collecting data, utmost

care was taken not to violate India's privacy policy law (Information Technology Act 2009 Amendment), so a disclosure was included in the questionnaire stating that sensitive personal information would not be shared without respondents' prior consent.

INTERVENTIONS

Interventions were set up as a two-hour class held twice a week and lasted for 10 weeks. The intervention program consisted of various activity-based models (Table 1.1) to inculcate positivity for improving their psychological health and self-efficacy. All the interactions, sharing experiences, and research were conducted in an intervention group (De Vibe et al., 2018). [31] The protocol of the intervention, which is detailed in Table 1.1, was derived from Dr. Martin Seligman's theory of PERMA, with minor changes or adjustments made to the original theory to better fit the specific needs or context of the intervention. with slight modifications. A single teacher (the investigator) led and completed the entire intervention.

TABLE 1.1: INTERVENTION MODULE

Module	Topic Covered	Academic hours	Activities Involved
Positive Emotions	Expression	4Hrs (2-Session)	Image analysis
	Management of Emotions	4Hrs (2-Session)	Show short emotional stories and writing
	Gratitude	4Hrs (2-Session)	Remember all the good things and express gratitude
Self-Efficacy	Academic Self-Efficacy	6Hrs (3-Session)	Three Things Exercise
		6Hrs (3-Session)	Positive Self-Talk
Positive Relationship	P-relationship	8Hrs (4-Session)	Speech on "Importance of Positive relationship in life"
	Empathy	8Hrs (4-Session)	Identifying and Modeling Emotions: By Showing Movies

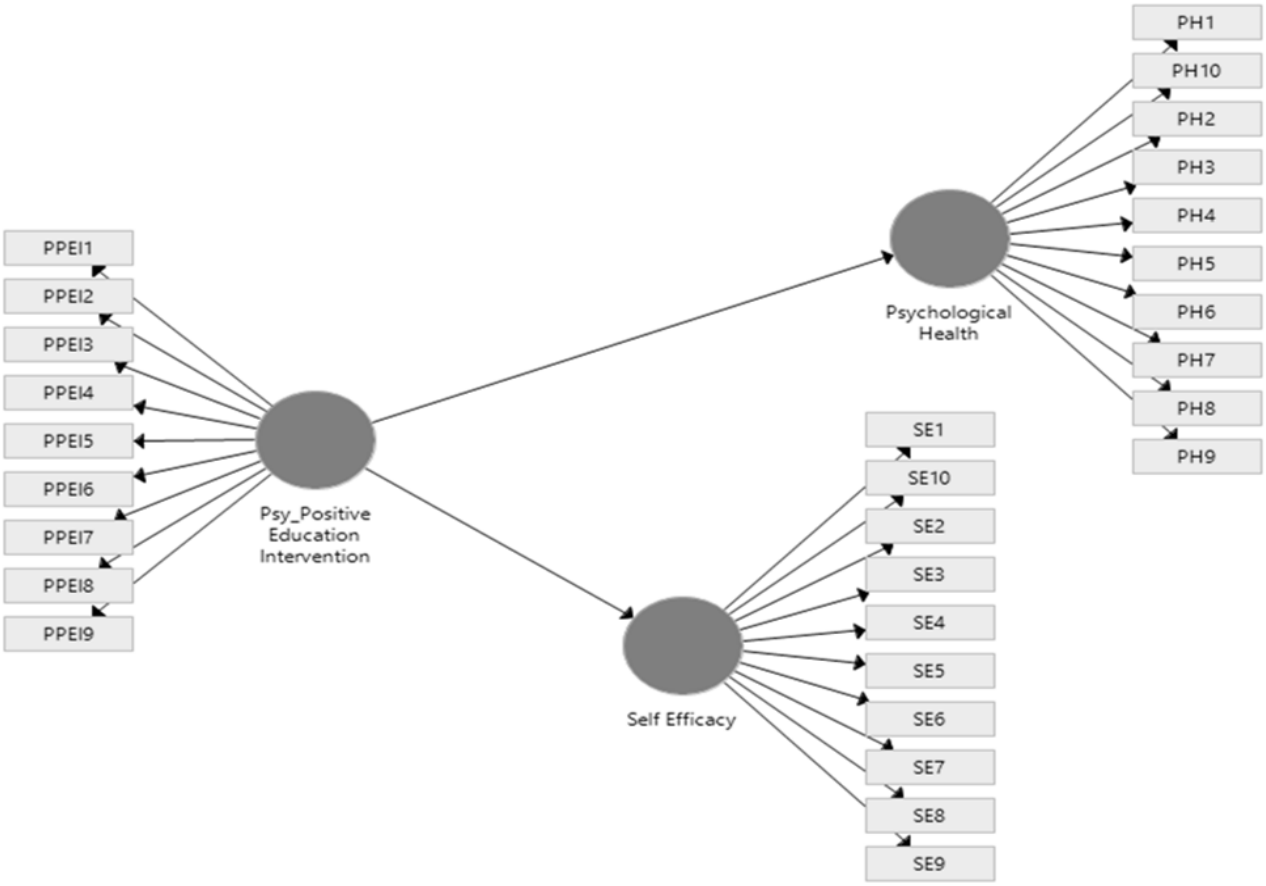
Control Group: The control group was a no-intervention group. The control group did not have any positive psychological interventions, and they continued with their regular classes, but pre- and post-tests were conducted on them also for the comparison with the intervention group to know the effect of intervention on psychological health and self-efficacy.

Intervention Group: The intervention group had interventions for 10-weeks with positive psychological interventions based on the PERMA Intervention Model during their regular classes. A pre- and post-test were conducted on the undergraduates before and after the intervention respectively.

CONCEPTUAL FRAMEWORK

This research investigates the impact of Positive Psychological Educational Intervention (PPEI) on undergraduate students' psychological health and academic self-efficacy. It aims to understand how PPEI influences these variables, contributing to positive psychology interventions in educational settings. Through empirical study, it explores the relationship between PPEI and students' well-being and academic confidence.

FIGURE 1: CONCEPTUAL FRAMEWORK OF THE CONSTRUCTS



RESEARCH HYPOTHESES DEVELOPMENT

This study attempted exploration of the following research hypotheses based on the research model illustrated in Figure 1.

- Hypothesis 1 (H1): Positive Psychological Educational Intervention has a significant direct impact on the psychological health among Undergraduates.
- Hypothesis 2 (H2): Positive Psychological Education Intervention has a significant direct impact on the Academic Self-Efficacy of Undergraduates.

The process of evaluating the results of partial least squares structural equation modeling (PLS-SEM) involves two steps. In Step 1, the examination of reflective measurement models is conducted. This is a necessary part of the evaluation because it provides support for the measurement quality. When quality is confirmed, the structural model evaluation is conducted in Step 2. While in Step 1, the measurement theory is examined, Step 2 covers the structural theory that involves testing the proposed hypotheses and addresses the relationships among the latent variables. Our model contains only reflective measures.

Table 1.2 presents construct reliability and validity for positive psychological educational intervention, psychological health, and self-efficacy demonstrates excellent reliability and internal consistency across all constructs, as evidenced by high scores in Cronbach's alpha, rho_A, and composite reliability, all exceeding the 0.9 thresholds. These metrics collectively indicate a strong degree of internal consistency and reliability in the measurement of these constructs, suggesting that the survey or assessment tool used is both valid and reliable for capturing the association between the three constructs of the study.

TABLE: 1.2: CONSTRUCT RELIABILITY AND VALIDITY

Constructs	Cronbach's Alpha	rho_A	Composite Reliability
Positive Psychological Educational Intervention	0.924	0.928	0.937
Psychological Health	0.939	0.949	0.948
Self-Efficacy	0.947	0.961	0.954

Source: Authors own calculations using SmartPLS3 Software.

TABLE 1.3: PLS-SEM ASSESSMENT RESULTS OF MEASUREMENT MODELS.

Latent Variable	Indicators		Convergent Validity	
			Loadings	AVE
			>0.70	>0.50
PH	**PH1**	I see myself as a good person	**0.802**	**0.624**
	PH2	I feel positive about my relationships with others and my interpersonal connections	**0.863**	
	PH3	I get satisfaction from the things I do	**0.845**	
	PH4	I feel I handle things quite well when obstacles get in my way	**0.826**	
	PH5	I have a positive outlook on my life	**0.836**	
	PH6	The things that I do have an impact	**0.824**	
	PH7	I feel upset when any of person around me is not well	**0.809**	
	PH8	I lose my temper very easily	**0.613**	
	PH9	I've been dealing with problems well	**0.796**	
	PH10	I've been interested in new things	**0.793**	
PPEI	**PPEI1**	Positive Emotion: I keep my emotions to myself.	**0.804**	**0.646**
	PPEI2	Positive Emotion: I do not fear expressing my understanding for the concept in the class	**0.728**	
	PPEI3	Positive Emotion: I am thankful for my teachers taking pains to facilitate the concept in easy way	**0.753**	
	PPEI4	Positive Emotion: I do not feel frustrated in classes	**0.81**	
	PPEI5	Positive Emotion: I try to connect the concepts with my daily life	**0.812**	
	PPEI6	Positive Relationship: I like to interact with my classmates during digital classes	**0.786**	
	PPEI7	Positive Relationship: My teacher gives me enough opportunities for constructive digital engagement with my peers	**0.855**	
	PPEI8	Positive Relationship: I reach out to help my fellow classmates who miss the digital classes due to unavoidable reasons	**0.848**	

	PPEI9	Positive Relationship: I do not create nuisance in digital class and help the teacher to facilitate an effective conduction of class	**0.699**	
SE	**SE1**	I can always manage to solve difficult problems if I try hard enough	**0.855**	**0.677**
	SE2	If someone opposes me, I can find the means and ways to get what I want.	**0.733**	
	SE3	It is easy for me to stick to my aims and accomplish my goals.	**0.697**	
	SE4	I am confident that I could deal efficiently with unexpected events.	**0.733**	
	SE5	Thanks to my imagination, I know how to handle unforeseen situations	**0.863**	
	SE6	I can solve most problems if I invest the necessary effort.	**0.9**	
	SE7	I can remain calm when facing difficulties because I can rely on my coping abilities.	**0.878**	
	SE8	When I am confronted with a problem, I can usually find several solutions	**0.922**	
	SE9	If I am in trouble, I can usually think of a solution	**0.697**	
	SE10	I can usually handle whatever comes my way	**0.872**	

Source: Authors own calculations using SmartPLS3 Software.

Convergent validity was calculated, which is the extent to which a construct converges in its indicators by explaining the items' variance. Convergent validity is assessed by the average variance extracted (AVE) across all items associated with a particular construct and is also referred to as "community." An acceptable threshold for the AVE is 0.50 or higher. This level or higher indicates that, on average, the construct explains more than 50% of the variance of its items.

The last step in reflective measurement is to assess discriminant validity. This analysis reveals to what extent a construct is empirically distinct from other constructs, both in terms of how much it correlates with other constructs and how distinctly the indicators represent only this single construct.

TABLE 1.4: DISCRIMINANT VALIDITY

Constructs	Positive Psychological Educational Intervention	Psychological Health	Self-Efficacy
Positive Psychological Educational Intervention	0.79		
Psychological Health	0.682	0.803	
Self-Efficacy	0.69	0.871	0.823

Source: Authors own calculations using SmartPLS3 Software.

Discriminant validity assessment in PLS-SEM involves analyzing Henseler et al.'s (2015) heterotrait-monotrait ratio (HTMT) of correlations. [33] The discriminant validity presented in Table 1.3 for positive psychological educational intervention, psychological health and self-efficacy demonstrates that each construct is distinct and measures unique phenomena within the model. This is evidenced by the square root of the AVE for each construct being higher than the correlations between psychological health and self-efficacy is relatively high (0.871), the square root of AVE values for each construct (0.803 and 0.823 resp.) still exceeding this correlation, maintain discriminant validity. This analysis ensures that the constructs are not only reliable but also distinct from one another, reinforcing the integrity and interpretability of the research findings by confirming that these constructs capture different dimensions of the psychological and educational phenomena under this study.

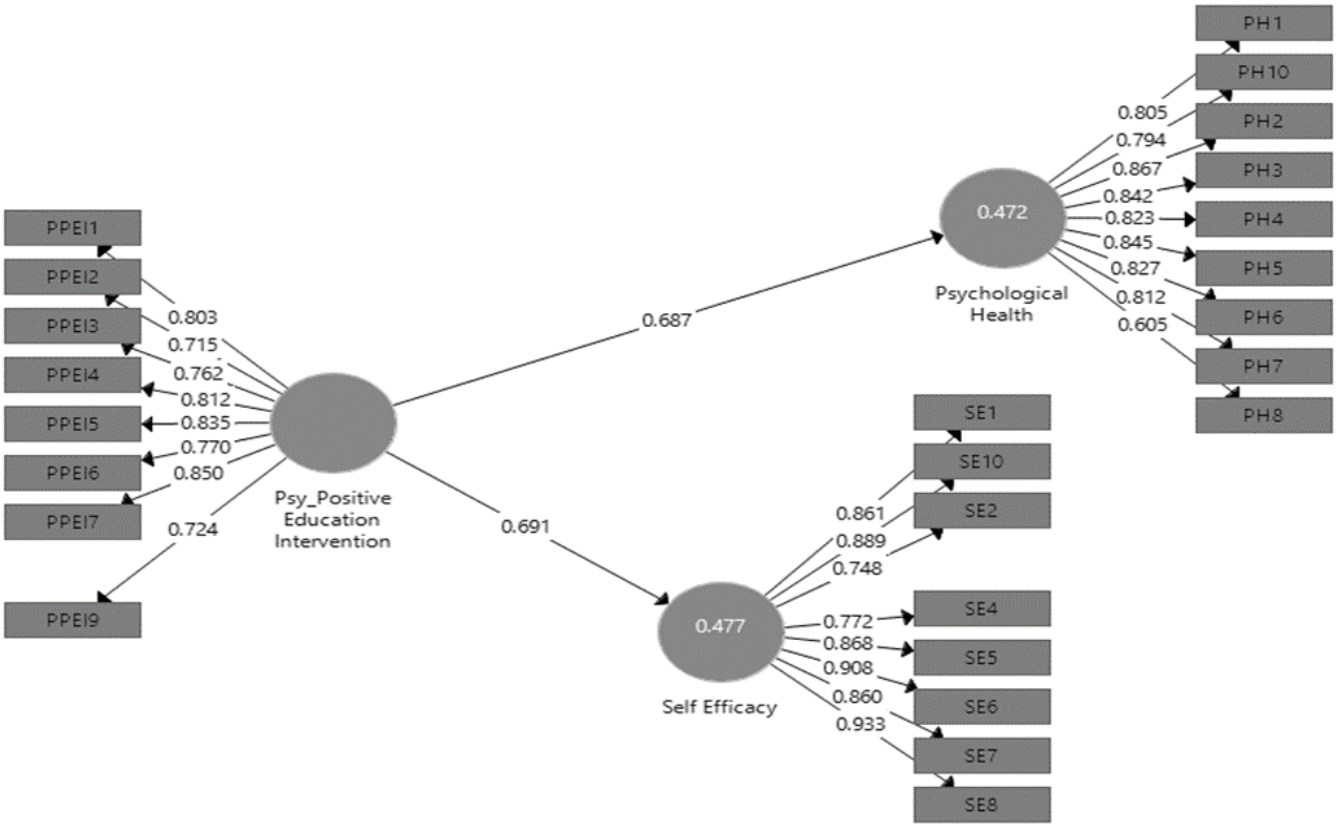
STRUCTURAL EQUATION MEASUREMENT

The data for this research was collected through a survey in Google Forms. As the nature of the study was experimental, the data was collected before and after the intervention of ten weeks.

Next, the data were screened; there was no missing frequency since it was guaranteed by the structure of the survey. The sample size of 45 is sufficient for the experimental study and also for the PLS path model estimation as it meets the recommended minimum sample size criteria for PLS path modeling, ensuring statistical reliability. After the pilot test of the survey structure, the researcher found that some items (PH8, PPEI9, SE3, and SE9) did not show any connection with the latent construct, so these items were taken as outliers of the study and not included in the final data collection and analysis.

The numbers on the path relationships represent the standardized regression coefficients, while the numbers displayed in the circles of the constructs represent the R2 values.

FIGURE 2:



Source: Authors own calculations using SmartPLS3 Software.

TABLE 1.5: PATH COEFFICIENT OF THE STRUCTURAL MODEL AND SIGNIFICANCE TESTING RESULTS (PRE & POST SCORES)

Constructs Connections	PRE-TEST SCORES					POST-TEST SCORES				
	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
PPEI -> PH	0.432	0.448	0.368	1.172	0.242	0.687	0.693	0.107	6.404	0.000
PPEI -> SE	0.603	0.665	0.148	4.081	0.000	0.691	0.707	0.096	7.188	0.000

Results reveal that positive psychological educational interventions affected undergraduates' psychological health. The first hypothesis, H1 is true. A comparison of pre-test scores (t-value 1.172 with a P-value of 0.242) and post-test scores (t-value 6.404 with a P-value of 0.000) showed that intervention affected students' psychological health. With the positive psychological educational interventions, students were able to develop positive emotions in terms of expressing their emotions, such as gratitude; they were also able to develop positive relationships with their peers.

The second hypothesis of the study, H2 was not true. In both the cases before and after the intervention, self-efficacy is significant, though there are differences in t-values (pre-test t scores are 4.081 and post-test t scores are 7.188), it was found that there is no huge effect of the intervention on the self-efficacy of undergraduates.

DISCUSSION

In the present study, we tested and validated the potential effect of a classroom-based positive psychology training course on improving psychological well-being and alleviating depressive symptoms in Chinese medical students. The effects of the intervention seemed promising. and encouraging. The hope scale, life satisfaction scale and subjective happiness scale of the participants appeared to improve, while their symptoms of depression and anxiety decreased. These findings suggest the promising effects of positive psychology education on improving the mental well-being of Chinese medical students, and indicate that teaching psychological well-being in school may be feasible and desirable.

CONCLUSIONS

In the current study, the investigator tested the effect of a positive psychological intervention based on the PERMA Model by Seligman on improving the psychological health and self-efficacy of an undergraduate. The effects of the intervention seemed encouraging and promising. The findings suggest the promising effects of positive psychology intervention (PPI) on improving the psychological health and self-efficacy of undergraduates and indicate that teaching PPI in educational institutions may be feasible and desirable. In this study, we established the intervention model as an elective short program embedded in the regular curriculum based on some unavoidable reasons: Psychological health-based intervention is more cost-effective and can benefit more students as compared with traditional counseling, as it goes with the curriculum. It also helps increase positive emotions and positive relationships, which help students keep away from anxiety and stress. This finding indicates the possibility and feasibility of positive psychology interventions in increasing the psychological health of undergraduates, even though the intervention was virtual. In the higher education community, investigators have proposed that positive psychological intervention concepts such as happiness, joy, positive emotions, positive relationships, self-efficacy, etc. should be included in the curriculum. The findings of the present study may therefore provide insights for PPI among undergraduates in the future. The findings of the present pilot study may provide a positive psychological intervention to improve the psychological health and self-efficacy of undergraduates. Further assessments of a larger sample cohort may yield more significant and reliable results.

Incorporating the significance of digital fatigue into the discussion, it is essential to acknowledge that the prevalence of digital fatigue among students has been a growing concern, particularly with the increased reliance on virtual environments for education and intervention delivery. Despite the potential for digital platforms to aggravate students' fatigue and stress, the design and execution of the positive psychological educational intervention (PPEI) stand out as a testament to the innovative approaches that can mitigate these challenges. This intervention was meticulously crafted to be highly interactive and engaging, effectively countering the usual pitfalls of virtual delivery methods. This strategic approach not only facilitated the removal of digital fatigue but also enhanced the effectiveness of the intervention, as evidenced by the significant improvement in psychological health and self-efficacy among participants.

LIMITATION AND FUTURE DIRECTIONS

To build upon the demonstrated efficacy of positive psychological educational interventions in improving psychological health and self-efficacy, future direction should encompass a multifaceted approach. Research should focus towards longitudinal studies to uncover the enduring the impacts of PPEI, while also broadening the demographic spectrum of participants to enhance the generalizability of findings. Investigating the mechanism underlying the observed benefits could unveil critical insights, guiding the refinement of intervention components.

While the present study provides promising implications for the application of PPI among undergraduates to improve their psychological health, the following limitations and weaknesses should be noted: First, the sample used in the present study was small, consisting of 45 undergraduates in each group. Moreover, the gender distribution among the participants was also not mentioned in the study. To make the finding more convincing, therefore, a larger participant pool and gender-wise distribution should be employed in future studies. Many constructs of positive psychology, like optimism, accomplishments in life, emotional adjustment, etc., were not part of the present study, so further studies may include all these constructs. These factors together may raise the possibility that a higher positive result was observed.

AUTHORSHIP

Both the authors Ms. Tanuja Khan and Dr. Amit Kumar Nag have contributed equally in this research paper.

CONFLICTS OF INTEREST

This is to certify that the present research work, titled "Building Psychological Health in Undergraduates with the Application of a Classroom-Based Positive Psychology Educational Intervention: A Pilot Study" is an original piece of research work that we have undertaken for APJHM. The contents of this research article are purely based on our interpretation of primary data. Neither the contents of the paper nor any other matter related to the manuscript have any conflict of interest.

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