

IVRS Based Multimodal Arts Intervention to build Adolescent Wellbeing during COVID-19 Pandemic

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Abstract

In the present times, COVID-19 pandemic has been one of the biggest health crises the world has experienced. The psychological toll of COVID-19 among adolescents has become a matter of concern, impacting their mental wellbeing, in such a crucial transitory stage of their lives. Given this context, the present study aims to address the psychosocial distress due to the pandemic and school closure faced by the adolescents studying in class 10th across government and aided schools in Tamil Nadu, using the medium of an interactive voice response system (IVRS) based multimodal intervention. For the purpose of the same, a 30-day IVRS multimodal intervention using storytelling and activities methodology was made available to the population. A sample ($n = 9728$) of participants were selected for evaluation of the study. A quasi-experimental, one group pretest-posttest research design was used for the evaluation. Data was collected through administration of Short Warwick Edinburgh Mental Well-Being Scale and in-depth personal interviews. The intervention was found to result in a significant increase [$t(9728) = 4.49, p < 0.01$] in the overall mental wellbeing of the participants. Item wise analysis of the scale reveals a significant increase in relaxation, closeness with other people, perceptions of one's ability to cope with problems and making decisions, amongst the participants. Overall, the study has far reaching consequences in the field of promotive and preventive mental health, and proves to be a model that can be explored further with different populations.

Keywords: Adolescents, Interactive Voice Response System Intervention, Mental Wellbeing, Pandemic, Story Telling

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Introduction

Adolescence is a period typically marked by several biological, cognitive, and psychosocial changes. On one hand, it is regarded as a phase of tremendous growth, preparing an individual for adulthood, whereas, on the other, it is a transition phase that can increase vulnerability to psychological distress (Nebhinani & Jain, 2019). It is a period marked with a desire to seek new experiences, a heightened desire for independence, a sense of vulnerability, and an inner search for identity which gradually shapes the personality of an individual (Berk, 2013).

In the present times, COVID-19 pandemic has been one of the biggest health crises the world has experienced. It has had a devastating impact across the world, resulting in millions of deaths, globally and forcing billions into isolation (Pollard, Morran, & Nestor-Kalinowski, 2020). The mental health challenges associated with the COVID-19 pandemic are monumental, given the prolonged social isolation and constant fear of infectivity experienced across the globe. This serves as a greater challenge particularly for adolescents, because one typically embarks on the journey of self-exploration during these years, which oftentimes is accompanied with vulnerabilities, confusion and a lack of coping mechanism that experienced adults possess (Gavin, Lyne, & McNicholas, 2020).

Globally, 10–20% of adolescents suffer from mental health conditions (Bruining, Bartels, Polderman, & Popma, 2021). This statistic is likely to be affected by the increased vulnerability of adolescents during the COVID-19 pandemic. It is reported that adolescents, who are typically exposed to high rates of stress, are more prone to develop psychological challenges such as depression, anger, and anxiety in these testing times (Grant, et al., 2003). Numerous studies have established an association between COVID-19 pandemic and rates of anxiety (Oosterhoff, Palmer, Wilson, & Shook, 2020; Duan, et al., 2020), depression (Tee, et al., 2020; Chen, et al., 2020) and increased frequency of substance abuse, such as alcohol and cannabis among adolescents during the pandemic (Dumas, Ellis, & Litt, 2020).

The COVID-19 induced lockdown had left many adolescents with no physical access to peers for a prolonged period of time. Limited opportunity to go outdoors or socialise impacts adolescents adversely, making them easily frustrated (Kumar, Nayar, & Bhat, 2020). Further, school closures have had adverse effects on the mental health of the adolescent population. Lee (2020) identified the various detrimental impacts of pandemic induced school closures on young people, including loss of routine, which has also

been shown to cause relapse in students with pre-existing mental health issues. Another major stressor for adolescents was the last-minute decisions on postponement of examinations. According to a poll by the student counselling group Hok Yau Club (March, 2020), over 20% of the 757 candidates surveyed said their stress levels were at a maximum 10 out of 10, even before the postponement was announced. Students reported experiencing loss of appetite and sleep problems, and the uncertainties associated with examinations have added to the levels of stress. Additionally, the fear about the health and wellbeing of loved ones, and loss of financial security due to the pandemic situation can take an emotional toll on adolescents. These challenges manifested as experiences such as anxiety, low mood, insomnia and loss of appetite amongst this age group (Smith, et al., 2020).

Coming specifically to the context of Tamil Nadu, the first COVID -19 case was reported on March 7th, 2020. Within India, the state of Tamil Nadu was one of the worst hit states, after Maharashtra and Andhra Pradesh (Lal, et al., 2021). Given this context, the government declared several lockdown and social distancing measures as precautionary steps. A number of studies were conducted to understand the impact of the same on adolescents in the state. A study conducted in the early stages of the pandemic in Tamil Nadu by Ramasubramanian, Mohandoss, Rajendhiran, Pandian and Ramasubramanian (2020) observed that every 1 in 5 persons experienced some form of stress. In the below 25 years age group, 42.9% experienced mild to moderate stress while 44.4% experienced severe stress. It was seen that younger people were more predisposed to stress as compared to older age groups. It was also found that lower income populations (2.5 lakhs to 5 lakhs per annum) experienced higher levels of stress as compared to higher income groups (Ramasubramanian, Mohandoss, Rajendhiran, Pandian, & Ramasubramanian, 2020). Anbarasu and Bhuvaneshwari (2020) conducted a study to understand the experiences of the pandemic amongst adolescents hailing from urban and rural communities in Vellore district, Tamil Nadu. The findings of their study revealed that a majority of the adolescents from urban contexts expressed challenges such as not feeling happy staying at home, feeling a sense of confinement, feeling bored and locked up in their houses. This sentiment was not shared by adolescents hailing from rural backgrounds as the social distancing laws were not strictly followed in their context. Furthermore, academic stress due to the uncertainty of what the future holds was one of the predominant concerns of many adolescents during the lockdown. This was reflected in various instances, for example, in September 2020, a high school student in Tamil Nadu State died by suicide after failing to cope with the pressure provoked by the online

lessons. The student faced difficulties understanding the lectures online and worried about failing in the exam (Nath, 2021; Agoramoorthy, 2021). Apart from these other challenges like, lack of routine and consequent issues related to sleep were also noted amongst adolescents. In their study, Devarajan, Mysamy, Venkatachalam and Veerasamy (2021) demonstrated evidence that variations in the sleep-wake cycle was more in adolescents than in other age groups, impacting their general wellbeing. Further, due to prolonged confinement at home children's increased use of the internet and social media predisposes them to use the internet compulsively, access objectionable content and also increases their vulnerability for getting bullied or abused (UNICEF, 2020). Worst of all, during lockdown when schools, and legal and preventative services do not function fully, children are rarely in a position to report violence, abuse and harm if they have abusive homes.

Given this context, the need of a promotive mental health intervention that addresses the concerns of adolescents and is accessible by all. With the aim of fulfilling this need, the present study explores a IVRS based multimodal intervention that uses storytelling and activities to enhance wellbeing amongst adolescents. The National Storytelling Network defines storytelling as a human expression that is interactive, uses words and gestures, presents a narrative, and encourages the use of imagination on the part of both listeners and tellers (Baldwin & Dudding, 2007). Digital storytelling methods may have greater potential to provide and build upon story-sharing skills, particularly for adolescents. Several studies have pointed towards the benefits of using storytelling interventions with adolescents, in terms of observing positive developments such as increased self-efficacy and decreased depression (Esterling, L'Abate, Murray, & Pennebaker, 1999; Gortner, Rude, & Pennebaker, 2006; Pennebaker, 2000). Engaging in a storytelling intervention involves identification (i.e., relating to a storyteller, event or experience), transportation (i.e., being "moved" or "carried away" by the story), and social rehearsal (i.e., the modelling of emotional expression or a particular desired behaviour) all of which contribute to learning and application of insights in real life (Larkey & Hecht, 2010). There is a dearth of research in the Indian context, with respect to storytelling intervention targeted at adolescent wellbeing. The present study thus becomes one of the starting points in the field.

METHOD

Aim

The aim of the present study is to address the psychosocial distress due

to the pandemic and school closure faced by the adolescents studying in class 10th across government and aided schools in Tamil Nadu, using the medium of an interactive voice response system (IVRS) based multimodal intervention.

Research Question

The study aimed at answering the following research question: What is the impact of an IVRS based multimodal intervention on the mental wellbeing of 10th standard students facing stress due to school closure amidst the pandemic?

Research Design

The present study followed a quasi-experimental, one group pretest-posttest research design. The dependent variable in the study is the level of well-being amongst participants. The independent variable in the study is the exposure to one month long digital multimodal intervention, using storytelling and activities.

Sample

The target population for the project consists of 620,000 participants studying in class 10th in government schools across Tamil Nadu. A sample of 9728 (Mean age = 15 years) participants was selected using stratified random sampling method. The target population for the study was divided into strata based on geographical districts they resided in, and then based on the proportion of representation in the overall population, participants were selected for the sample randomly.

Tools

Short Warwick Edinburgh Mental Well-Being Scale (SWEMWBS). A shortened version of Warwick Edinburgh Mental Well-Being Scale (Tenant, et al., 2007), the SWEMWBS is a 7-item scale designed to evaluate the progress of interventions in the field of positive and promotive mental health amongst non-clinical populations. SWEMWBS has high internal consistency (Ringdal, et. al, 2018) and has been validated to be used for a population with the ages of 15- 21 years (McKay & Andretta, 2017; Ringdal et al., 2018).

In depth personal interview. A sample of (n = 50) children were selected using random sampling for conducting interviews. This was aimed at procuring deeper insight into the participant's experiences, learnings and feedback of the programme.

Study Procedure

After an extensive review of literature and needs assessment conducted with teachers, school counsellors and adolescents studying in class 10, the objectives of the study were framed. The themes that emerged from the needs assessment were then mapped to the UNICEF Life Skills and Citizenship Framework (UNICEF, 2019). This was followed by development of the content, in terms of stories and activities, which were matched to four themes- Understanding privacy and space, Dealing with disruption in routine, Dealing with anxiety and uncertainty, and Making time for self and others.

This was followed by conduction of baseline survey with a selected sample. To collect the data, an interactive voice response system (IVRS) was used. The program implementation followed thereafter (May - June 2020). A new story was uploaded every day for one month. To access the story, a toll-free number was established on which the participants could give a missed call. An automated call was then placed back to the respective phone numbers. On receiving the call, the story for the day would be played. The story was accessible to the participants all throughout the day. Each story had some recommended activities that the participants could undertake. Upon completion of a month-long implementation phase, the endline data was collected. This was followed by analysis of the data collected and reporting.

RESULTS

Table 1

Comparison of total mean scores between the baseline and endline on Short Warwick Edinburgh Mental Well-Being Scale

Item		N	Mean	S.D	t value	p value
TotalScore Comparison	Baseline	9728	18.61	5.05	4.49	0.00*
	Endline	9728	18.95	5.464		

*p value < 0.01

Table 2

Item wise comparison of mean scores between the baseline and endline on Short Warwick Edinburgh Mental Well-Being Scale

Item		N	Mean	S.D	t value	p value
“I have been feeling optimistic about the future”	Baseline	9728	3.14	1.04	2.12	0.03*
	Endline	9728	3.11	1.08		
“I have been feeling useful”	Baseline	9728	2.81	1.07	1.80	0.07
	Endline	9728	2.78	1.09		
“I have been feeling relaxed”	Baseline	9728	2.31	1.03	7.47	0.00*
	Endline	9728	2.43	1.06		
“I have been dealing with problems well”	Baseline	9728	2.55	1.09	3.13	0.02*
	Endline	9728	2.60	1.11		
“I have been thinking clearly”	Baseline	9728	2.74	1.10	1.63	0.10
	Endline	9728	2.77	1.12		
“I have been feeling close to other people”	Baseline	9728	2.52	1.15	4.84	0.00*
	Endline	9728	2.6	1.16		
“I’ve been able to make up my own mind about things”	Baseline	9728	2.53	1.08	8.27	0.00*
	Endline	9728	2.66	1.11		

*p value < 0.05

DISCUSSION

The aim of the present study is to address the psychosocial distress due to the lockdown and exam related stress faced by the adolescents studying in class 10th across government and aided schools in Tamil Nadu, using the medium of an IVRS based multimodal intervention. Data on the impact of the intervention of the mental wellbeing of the participants was collected through administration of Short Warwick Edinburgh Mental Well-Being Scale and in-depth personal interviews. The discussion of the findings is

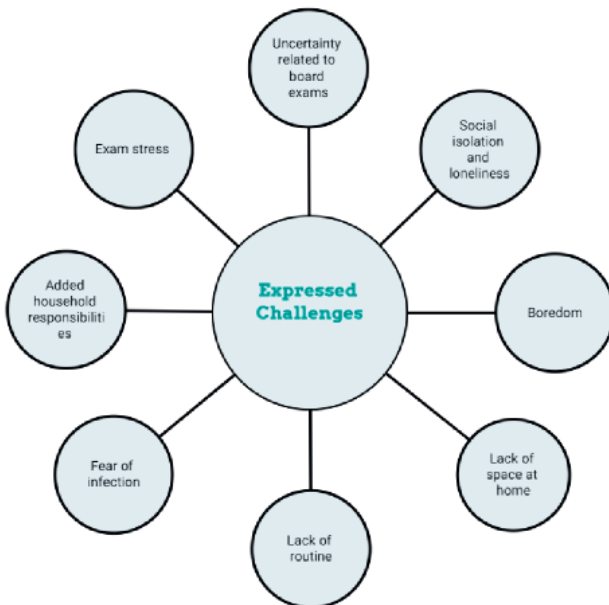
presented below:

Expressed Challenges

The participants expressed a number of challenges that they experienced due to the pandemic. One of the most prominent challenges expressed was related to the uncertainty of the board examination schedule. In India, board examinations are public examinations conducted at the end of 10th grade, and are regarded as a certification for completion of middle school. The participants expressed stress and anxiety related to the exams along with a need for assistance in certain subjects. Further, a fear regarding getting infected with COVID -19 and its consequences on the board exams was expressed. Social isolation and loneliness was another prominent theme that emerged from the responses of the participants. School closures and the decision of moving to hometown amongst many families, made it difficult for the participants to keep in touch with their friends. Moreover, there was a lot of boredom reported by the participants, given that they experienced a lack of routine post lockdown. Lastly, some of the participants reported having to deal with a lack of space at home and added responsibilities of household chores.

Figure 1

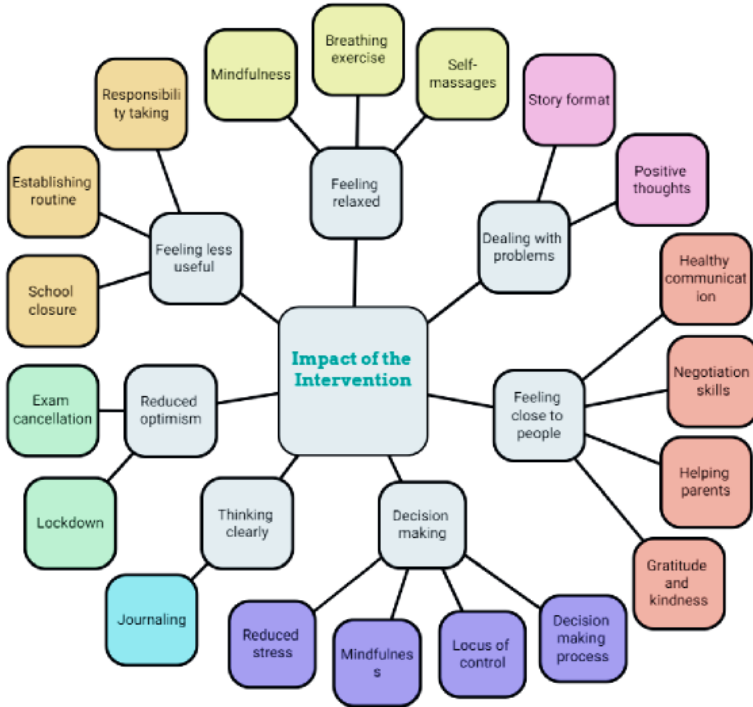
Challenges expressed by the participants



Impact of the Intervention

Figure 2

Impact of the intervention on the participants



The results obtained reveal that there has been a significant increase [$t(9728) = 4.49, p < 0.01$]. in the overall mental wellbeing of the participants in the endline ($M=18.95$), as compared to the baseline ($M=18.61$). This improvement could be attributed to multiple factors like the format of the stories, nature of activities and other contextual influences.

From Table 2, it is seen that Statements 3 (“I have been feeling relaxed”), 4 (“I have been dealing with problems well”), 6 (“I have been feeling close to other people”), and 7 (“I’ve been able to make up my own mind about things”) have statistically significant improvement between the baseline and endline scores. Further, an increase in mean scores was observed for Statement 5 (“I have been thinking clearly”), though the improvement was not statistically significant. The improvements in the aforementioned domains could be attributed to two factors, the format of the stories and the activities suggested in the stories.

For instance, the participants engaged with a number of activities that involved bodily techniques for relaxation like breathing exercise, mindfulness exercises and self-massages. Past research in this field has shown the effectiveness of using similar techniques to improve relaxation amongst adolescents. Sellakumar (2015) in his study demonstrated that using slow breathing exercises with adolescents in Coimbatore, India for a period of 30 minutes every day, for 45 days' led to a significant decrease in anxiety levels and improved levels of relaxation. Similarly, research evidence points to the direction that regular and consistent engagement in mindfulness-based activities contribute to reduced physiological and emotional manifestations of stress, academic stress and stress due to peer interactions amongst high school students in Delhi, India (Anand & Sharma, 2014). Research has also shown that regular mindfulness practice can lead to improvement in problem solving abilities (Justh, 2019). Insights from qualitative interviews with the participants further validate this finding.

"I first called just to check it out. But I liked it a lot. Take it eazy is a good goooooood programme...."

"When I listen to Take It Eazy, I feel relaxed. The stories are very engaging, like the stories involve us... because of that, our mind feels satisfied (relaxed)..."

- Male, 15 years, Perumbakkam

"It was relaxing... it was also useful. After listening to the episodes, I was thinking when they will put another episode..."

- Male, 15, Tamil Nadu

"I learnt a lot through the programme.... Mind relaxation... I also made notes... under each date, I wrote what was told in that episode.... (reads from his notebook)... they talked about a lot of things... about child abuse, about helping others in the house... locus of control... about self respect... they talked about a lot of things.... They also spoke about unity, not to fight with others... I remember this during fights... then I feel a little relaxed... like this they spoke about a lot of things. "

- Male, 15 years, Pudhukottai

The story format was designed in a manner that the protagonists constantly modelled problem-solving behaviours in their interactions. Jonassen and Serrano (2002) in their study, elaborated on how storytelling is a befitting methodology to teach problem solving to individuals, as it exposes people to real life problems, and perspectives of experts who view situations in various ways, which might be different from how layman view it in their daily lives. Thus, the format of the stories could be one of the factors contributing to increased confidence in problem solving amongst the participants.

Studies have also shown that negative thoughts or rumination can result in reduced perception of control and interfere with a person's problem-solving abilities (Lyubomirsky, Kasri, & Zehm, 2003; Lyubomirsky & Tkach, 2008). Introducing the activity to replace these negative thoughts with positive ones and focus on the things one can control, could have also resulted in the adolescents feeling more confident about their abilities to solve problems.

Additionally, the intervention introduces the participants to a number of learning strategies like mnemonics, colour coding texts, visual representations and using flashcards. The importance of having an academic routine and asking questions during the learning process was also emphasised in the process. These strategies have aided the learning process, and resulted in greater confidence with respect to learning. This is reflected in the following interview excerpts.

"I really like the episodes. Right from the beginning, they asked to call and listen to the program, and so I listened to it, and right from the beginning it was really interesting, and it felt like my concerns were being addressed, like giving useful tips for exams, how to study and how to write etc.... I've called and listened to the program again and again, I really enjoyed it. I would have listened to each episode almost five times... During exams I feel really sleepy usually, but after listening to the program they gave a lot of tips on how to help with that, and that has been really useful for me"

- Female 15 years, Perambalur

Since academic stress and uncertainty about the future happens to be one of the biggest stressors amongst adolescents in the given context (Subramani & Kadiravan, 2017), the assistance that the participants received in terms of alternative learning strategies probably contributed to them feeling more confident about their ability to deal with problems they encounter.

Given that the participants are adolescents, feeling closer to their peer group compared to their parents is a common experience in this developmental stage. The participants also reported experiencing challenges like feelings of social isolation and confinement due to lack of interaction with friends. Keeping this in mind strategies to develop meaningful relationships with parents like practising healthy communication, negotiation and helping parents out in daily tasks were suggested. The following excerpts illustrates the same.

"I had listened to all the programmes with my mother... I daily spend time to talk , play , fight (small) with my siblings".

- Female, 15 years, Karur

"I am in contact with 5-6 of my friends.... I talk to them daily... Mostly....when will this lockdown be over... when will the school reopen... when can we meet...we discuss such things.... I told 2-3 of them about the programme. They said they are also listening to it."

- Male, 16 years, Salem

Strategies to deal with social isolation experienced by the adolescents due to the pandemic were also suggested. These involved activities such as engaging in acts of kindness, practising communication skills, helping parents at work and expression of gratitude. This is in line with research findings that suggest that communication practices are crucial for familial cohesion, overcoming experiences of separateness and adaptation particularly during adolescence (Barnes & Olson, 1985). Further, engaging in acts of kindness has been proven to enhance wellbeing and social connectedness amongst adolescents (Cotney & Banerjee, 2019). Thus, the kindness activities of the intervention could have potentially contributed to enhanced social connectedness amongst participants.

Journaling was another activity that was introduced as a regular practice through the intervention. Research shows that regular practice of journaling helps in bringing greater clarity to thoughts and feelings (Purcell, 2006). As journaling is a new concept, while some took to it quickly, some of the adolescents needed more clarity on it. The following excerpts from the in-depth interviews conducted with them depict this:

"I liked the tree planting activity a lot... I also liked journal... like they told, I am writing journal daily, I am feeling good after it... helps me in thinking.."

- Male, 15 years, Perumbakkam

"little more time... it ends very fast, it feels like it is going and gets over before that... extending it a bit and adding more characters... making it more super... it is my feedback.... And... this journaling and meditation, how to do it is not clear... talk more about that..."

- Male, 15 years, Perambalur

It has been proven by research that stress, especially during uncertain times can impact the effectiveness of making decisions (Morgado, Sousa, Cerqueira, 2014). The discussion on the process of decision making along with the improvements in the participants' experiences of relaxation, clarity of thought and the perceived ability to deal with problems well has also contributed positively to improvement in their confidence to make decisions.

From Table 2, it is also seen that Statements 1 ("I have been feeling optimistic about the future"), has been a statistically significant decrease between the baseline and endline scores with a reduction in mean scores. This can be resulting due to the board exam cancellation and the lockdown. As many participants mentioned that they aimed at scoring more during the board examination and had scored less marks during half-yearly. Now that the exams are cancelled and weightage is being given to the half-yearly marks, the children are worried about their overall scores. Performance in board examinations is considered to be a significant stressor amongst adolescents in India, as reported by previous studies as well (Ann Mary, Marslin, Franklin, & Sheeba, 2014; Deb, Strodl, & Sun, 2015). This stressor was further exacerbated by the continued lockdown, uncertainties associated with exam schedule and lack of physical classes.

A decrease in mean scores was also observed for Statement 2 ("I have been feeling useful"). However, the difference was not statistically significant. Studies indicate that some of the major challenges faced by adolescents during the pandemic were related to an absence of structured school setting, which led to boredom and lack of innovative ideas for engaging in various academic and extracurricular activities. Some children have expressed lower levels of affect for not being able to play outdoors and not engaging in school activities (Lee, 2020; Liu, et al., 2021; Zhai & Du, 2020). These findings are similar to the findings of the needs analysis conducted with the population of interest. To counter this, a number of activities were suggested in the intervention, such as techniques for tracking a routine, plotting a

sleep graph, encouraging responsibility taking in terms of household chores and helping family members, and introduction to new activities like poetry and story writing. The qualitative insights obtained indicate that there has been a reported improvement amongst the participants in terms of following a routine. The following are certain excerpts from the interview illustrating this.

"After the programme, mam, now I am sleeping by 9 pm and I get up early by 4.30 am and keep this a routine"

- Female, 15 years, Karur

"I wake up early in the morning... after waking up I drink water... then I do yoga for some time... then.. I take a bath, eat... play with my friends... then I have my lunch in the afternoon... then I play for some time... then night..."

- Male, 16 years, Salem

Further, excerpts from qualitative interviews also suggest that the participants reported enjoying new activities they have learnt through the stories they heard.

"New things.... In the first episode, they talked about poetry writing and planting a tree... Recently I wrote a poem... like a mother talking to her son... (recites 2 lines)... "

- Female, 15 years, Karur

"I learnt a lot through the programme.... Mind relaxation... I also made notes... under each date, I wrote what was told in that episode.... (reads from his notebook)... they talked about a lot of things... about child abuse, about helping others in the house... locus of control... about self respect... they talked about a lot of things.... They also spoke about unity, not to fight with others... I remember this during fights... then I feel a little relaxed... like this they spoke about a lot of things. "

- Male, 15 years, Pudhukottai

Both the introduction of a structured routine and new activities that the participants can engage in, are aimed towards reducing boredom and enhancing the feeling of productivity amongst the adolescents. However, the

uncertainties associated with the pandemic, the prolonged lockdowns, social distancing and lack of school structure have potentially contributed to a slight decrease in the mean of scores indicating the degree of usefulness the participants report feeling.

Limitations and Future Directions

Notwithstanding the positive results, the present study suffers from certain limitations. Firstly, there are a set of challenges associated with the medium used for conducting the intervention and study, i.e. IVRS technology and phone calls. This model did not allow scope for direct interactions with the participants. However, this medium was chosen with the goal of reaching out to maximum participants during the pandemic. Secondly, the researchers had no control over the extraneous variables such as examination schedules, pandemic, socio-political or economic conditions, all of which had an impact on the participants' reception of the intervention.

Recommendations for the future iterations include adding a visual component to the audio stories to enhance involvement and engagement of participants. Further, content can be made keeping in mind other stakeholders who impact the lives of the adolescents like teachers and parents. Overall, the study has far reaching consequences in the field of promotive and preventive mental health, and proves to be a model that can be explored further with different populations.

CONCLUSION

The present study was conducted to understand the impact of an IVRS based multimodal intervention, on the mental wellbeing of 10th standard students facing stress due to school closure amidst the pandemic. The findings of the study indicate that there was statistically significant improvement in the adolescents' overall mental wellbeing with specific improvements in subjective feelings of relaxation and closeness with other people, as well as perceptions of one's ability to deal well with problems and make up one's mind about things. It was also observed that feelings of optimism and self-usefulness had reduced due to various factors as discussed in paper. The study highlights how insights from research can be integrated to design a comprehensive storytelling based promotive mental health intervention addressing concerns faced by adolescents during the pandemic.

References

Agoramoorthy, G. I. (2021). India's outburst of online classes during COVID-19 impacts the mental health of students. *Current Psychology*.

- Anand, U., & Sharma, M. P. (2014). Effectiveness of a mindfulness-based stress reduction program on stress and well-being in adolescents in a school setting. *Indian Journal of Positive Psychology*, 5(1), 17.
- Anbarasu, A., & Bhuvanewari, M. (2020). COVID-19 Pandemic And Psychosocial Problems In Children And Adolescents In Vellore-District. *European Journal of Molecular & Clinical Medicine*, 7(7), 334-339.
- Ann Mary, R., Marslin, G., Franklin, G., & Sheeba, C. J. (2014). Test anxiety levels of board exam going students in Tamil Nadu, India. *BioMed research international*, 1-9.
- Baldwin, J., & Dudding, K. (2007). Storytelling in schools. *National Storytelling Network*, 1-43.
- Barnes, H. L., & Olson, D. H. (1985). Parent-adolescent communication and the circumplex model. *Child development*, 438-447.
- Berk, L. (2013). *Child Development*. Boston : Pearson Education.
- Bruining, H., Bartels, M., Polderman, T. J., & Popma, A. (2021). COVID-19 and child and adolescent psychiatry: an unexpected blessing for part of our population? *European child & adolescent psychiatry*, 30(7), 1139-1140.
- Chen, F., Zheng, D., Liu, J., Gong, Y., Guan, Z., & Lou, D. (2020). Depression and anxiety among adolescents during COVID-19: A cross-sectional study. *Brain, behavior, and immunity*, 86.
- Cotney, J. L., & Banerjee, R. (2019). Adolescents' conceptualizations of kindness and its links with well-being: A focus group study. *Journal of Social and Personal Relationships*, 36(2), 599-617.
- Deb, S., Strodl, E., & Sun, H. (2015). Academic stress, parental pressure, anxiety and mental health among Indian high school students. *International Journal of Psychology and Behavioral Science*, 5(1), 26-34.
- Devarajan, S., Mysamy, S., Venkatachalam, T., & Veerasamy, G. (2021). Impact of lockdown on sleep wake cycle and psychological wellbeing in South Indian population: A Cross-Sectional and Descriptive Study. *International Journal of Medical Sciences and Nursing Research*, 12-16.
- Duan, L., Shao, X., Wang, Y., Huang, Y., Miao, J., Yang, X., & Zhu, G. (2020). An investigation of mental health status of children and adolescents in china during the outbreak of COVID-19. *Journal of affective disorders*, 275, 112-118.
- Dumas, T. M., Ellis, W., & Litt, D. M. (2020). What does adolescent substance use look like during the COVID-19 pandemic? Examining changes in frequency, social contexts, and pandemic-related predictors. *Journal of Adolescent Health*, 67(3), 354-361.
- Esterling, B. A., L'Abate, L., Murray, E. J., & Pennebaker, J. W. (1999). Empirical foundations for writing in prevention and psychotherapy: Mental and physical health outcomes. *Clinical psychology review*, 19(1), 79-96.
- Gavin, B., Lyne, J., & McNicholas, F. (2020). Mental health and the COVID-19 pandemic. *Irish journal of psychological medicine*, 37(3), 156-158.
- Gortner, E. M., Rude, S. S., & Pennebaker, J. W. (2006). Benefits of expressive writing in lowering rumination and depressive symptoms. *Behavior therapy*, 37(3), 292-303.

- Grant, K. E., Compas, B. E., Stuhlmacher, A. F., Thurm, A. E., McMahon, S. D., & Halpert, J. A. (2003). Stressors and child and adolescent psychopathology: moving from markers to mechanisms of risk. *Psychological bulletin*, 129(3), 447.
- Jacob, P., Rajendra, K., Ghosh, S., & Sagar, V. (2020). COVID-19 Pandemic and Mental Health Issues in Children and Adolescents, in *Mental Health in the times of COVID-19 Pandemic Guidelines for General Medical and Specialised Mental Health Care Set*. Bengaluru: National Institute of Mental Health and Neurosciences.
- Jonassen, D., & Serrano, J. (2002). Case-based reasoning and instructional design: Using stories to support problem solving. *Educational Technology Research and Development*, 50(2), 65–77.
- Justh, M. (2019). The effect of Mindfulness on Problem Solving Ability in High School Students. In *Proceedings of the Berkeley Carroll 8th Independent Research Conference*, 74-79.
- Kumar, A., Nayar, K. R., & Bhat, L. D. (2020). Debate: COVID-19 and children in India. *Child and adolescent mental health*, 25(3), 165-166.
- Lal, P., Kumar, A., Prasad, A., Kumar, S., Saikia, P., Dayanandan, A., & ... & Khan, M. L. (2021). COVID-19 pandemic hazard–risk–vulnerability analysis: a framework for an effective Pan-India response. *Geocarto International*, 1-12.
- Larkey, L. K., & Hecht, M. (2010). A model of effects of narrative as culture-centric health promotion. *Journal of health communication*, 15(2), 114-135.
- Lee, J. (2020). Mental health effects of school closures during COVID-19. *Lancet Child Adolescent Health*, 4-421.
- Lee, J. (2020). Mental health effects of school closures during COVID-19. *The Lancet Child & Adolescent Health*, 4(6), 421.
- Liu, Y., Yue, S., Hu, X., Zhu, J., Wu, Z., Wang, J., & Wu, Y. (2021). Associations between feelings/behaviors during COVID-19 pandemic lockdown and depression/anxiety after lockdown in a sample of Chinese children and adolescents. *Journal of affective disorders*, 98-103.
- Lyubomirsky, S., & Tkach, C. (2008). *The consequences of dysphoric rumination*. California : UC Riverside.
- Lyubomirsky, S., Kasri, F., & Zehm, K. (2003). Dysphoric rumination impairs concentration on academic tasks. *Cognitive Therapy and Research*, 27(3), 309-330.
- McKay, M. T., & Andretta, J. R. (2017). Evidence for the psychometric validity, internal consistency and measurement invariance of Warwick Edinburgh Mental Well-being Scale scores in Scottish and Irish adolescents. *Psychiatry research*, 382-386.
- Nath, A. (2021, March 11). Tamil Nadu: Unable to handle stress of online lessons, class 11 student dies by suicide. *India Today*, pp. <https://www.indiatoday.in/india/story/tamil-nadu-unable-to-handle-stress-of-online-classes-student-dies-by-suicide-171>.
- Nebhinani, N., & Jain, S. (2019). Adolescent mental health: Issues, challenges, and solutions. *Annals of Indian Psychiatry*, 3(1), 4.
- Oosterhoff, B., Palmer, C. A., Wilson, J., & Shook, N. (2020). Adolescents' motivations to engage in social distancing during the COVID-19 pandemic: associations with mental and social health. *Journal of Adolescent Health*, 67(2), 179-185.

- Pennebaker, J. W. (2000). Telling stories: The health benefits of narrative. *Literature and medicine*, 19(1), 3-18.
- Pollard, C. A., Morran, M. P., & Nestor-Kalinowski, A. L. (2020). The COVID-19 pandemic: a global health crisis. *Physiological genomics*, 549-557.
- Purcell, M. (2006). The health benefits of journaling. *Psych Central*, 1-2.
- Ramasubramanian, V., Mohandoss, A. A., Rajendhiran, G., Pandian, P. R., & Ramasubramanian, C. (2020). Statewide Survey of Psychological Distress Among People of Tamil Nadu in the COVID-19 Pandemic. *Indian Journal of Psychological Medicine*, 42(2), 368-373.
- Ringdal, R., Bradley Eilertsen, M. E., Bjørnsen, H. N., Espnes, G. A., & Moksnes, U. K. (2018). Validation of two versions of the Warwick-Edinburgh mental well-being scale among Norwegian adolescents. *Scandinavian journal of public health*, 46(7), 718-725.
- Sellakumar, G. K. (2015). Effect of slow-deep breathing exercise to reduce anxiety among adolescent school students in a selected higher secondary school in Coimbatore, India. *Journal of Psychological and Educational Research*, 23(1), 54-72.
- Smith, L., Jacob, L., Yakkundi, A., McDermott, D., Armstrong, N. C., & Barnett, Y. .. (2020). Correlates of symptoms of anxiety and depression and mental wellbeing associated with COVID-19: a cross-sectional study of UK-based respondents. *Psychiatry research*, 291.
- Subramani, C., & Kadiravan, S. (2017). Academic stress and mental health among high school students. *Indian Journal of Applied Research*, 7(5), 404-406.
- Tee, M. L., Tee, C. A., Anlacan, J. P., Aligam, K. J., Reyes, P. W., Kuruchittham, V., & Ho, R. C. (2020). Psychological impact of COVID-19 pandemic in the Philippines. *Journal of affective disorders*, 379-391.
- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., & Weich, S. ..-B. (2007). The Warwick-Edinburgh mental well-being scale (WEMWBS): development and UK validation. *Health and Quality of life Outcomes*, 1-13.
- UNICEF. (2019). *Comprehensive LifeskillsFramework* .UNICEF India .
- Zhai, Y., & Du, X. (2020). Addressing collegiate mental health amid COVID-19 pandemic. *Psychiatry research*, 288.