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Reliability and factor analysis of Hindi version of IES-R scale: Effect of Rajyoga meditation on perceiving the impact of COVID-19

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ARTICLE INFO

Keywords:

Impact of Event-Revised scale
Rajyoga meditators
Psychological impact
Coronavirus
Reliability
Validity

ABSTRACT

The purpose of this study is to present the Hindi translation and validation of the Impact of Event Scale-Revised and to evaluate psychometric qualities of this scale in a sample of regular Rajyoga meditators to examine the psychological impact of Coronavirus on them. The convenience sampling method was used to collect the data from 801 Rajyoga meditators through online survey. Data were analysed using SPSS 26.0. The Hindi version of IES-R demonstrated good internal consistency with the value of alpha coefficient being 0.91 for the scale and ranging between 0.81 to 0.83 for the subscales. The correlations between the subscales varied between 0.55 and 0.66. Principal components analysis using Varimax rotation was run with three-factor solution based on eigen value greater than one. This solution explained 54 percent of the total variance. It generated mainly two factors, an intrusion hyperarousal factor and an avoidance factor and third factor with one item only. Only 4.7 percent of the meditators rated the outbreak's psychological impact as moderate or severe. The mean score of IES-R was 10.01 (with an S.D. of 11.107). Significant positive correlations were found among IES-R scores and the presence of COVID symptoms. Thus, in clinical and research contexts, the scale appears to be a valid measure of post-trauma occurrences. The present study was conducted to generate a validated Hindi version of the IES-R that is easier and more compatible for use in the Indian population.

1. Introduction

The coronavirus crisis is currently being faced by the whole of the world. There is a need to address this psychological crisis through easily accessible and affordable interventions designed to lower the impact of the ongoing situations on mental health of all the individuals.

1.1. Effects of COVID-19 on mental health

A systematic review has been discussed with respect to the impact of COVID-19 on psychological outcomes in the general population and has also identified factors associated with this distress in the literature [1]. In most of the investigations, there was significant prevalence of psychiatric problems. High rates of stress, depression, anxiety and post-traumatic stress disorder were reported in the general population among distinct nations. Those who were at higher risk were the females, young population, psychiatric patients, unemployed, students and the people more exposed to social media. More than half of the respondents (53.8%) reported moderate-to-severe psychological effects when the Coronavirus outbreak in China was in its early beginnings, and almost a third (28.8%) experienced moderate-to-severe anxiety, 16.5 percent of people said their depression was moderate

to severe, while 8.1 percent said their stress levels were moderate to severe [2]. Among the general population of Saudi Arabia, approximately one-fourth of those polled (23.6%) suffered moderate to severe psychological distress [3]. The Spanish population labelled the COVID-19 health situation as "quite severe", and about 36% of the sampled population reported the psychological impact as moderate to severe. The economic crisis had worst hit the well-being of the Spanish [4]. In India also, during the first wave, the online survey study concluded that approximately one-third of the subjects had experienced substantial psychological distress [5]. Nearly 18.2 percent of all respondents had moderate to severe psychological distress. In another cross-sectional study, 4612 participants from eight different nations were recruited using chain mediation model [6]. Data on physical symptoms, psychological health (using IES-R and DASS scales) and the need for health-related information was collected from these participants. According to the findings, Poland and the Philippines had the greatest levels of stress, depression, and anxiety, while Vietnam had the lowest average scores. The three nations with the highest IES-R scores were China (mean score 32.54 with standard deviation of 0.52), Iran (mean score 31.61 with standard deviation of 0.82), and Poland (mean score 31.18, with standard deviation of 31.18), while the IES-R score (mean score 17.82 with standard deviation of 1.31) in Vietnam was the

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lowest [6]. The urge for health-related information and the perceived effect of meditation were shown to be mediator between COVID-19 related physical symptoms and subsequent mental health symptoms. A similar study compared the psychological health of general population in Seven Asian middle-income countries during COVID-19 using IES-R and DASS-21 [7]. The mean scores of depression, stress and anxiety were the highest in Thailand, whereas Vietnam had the lowest scores. Thailand (mean score 42.35 with standard deviation of 13.39), China (mean score 32.98 with standard deviation of 15.42), and Iran were the top three nations with the highest IES-R scores (mean score 30.42 with standard deviation of 15.82), while the IES-R scores of general populations in Vietnam were the lowest (mean score 17.39 with standard deviation of 13.72) [7].

The measures taken by the governments to stop COVID-19 from spreading benefited the mental health of the general population, besides improvements in their physical health. Data taken from participants recruited across 33 countries revealed that in nations where strict restrictions were enacted quickly, the prevalence of clinically severe depression symptoms was much lower [8].

1.2. Impact of Event-Revised (IES-R) scale and its validation

The Impact of Event Scale is an assessment questionnaire designed to assess the stress caused by distressing experiences [9]. But this scale did not include the factors of arousal subscale. As a result, a new version of the scale was formulated that included new items about arousal [10]. It includes 22 items organised into three symptom groups that have been identified as indications of PTSD. (PTSD). These three subscales are Intrusion, and Hyperarousal, and Avoidance. The participants are expected to rate their level of distress on a five-point Likert scale. Translation and validation of the IES-R scale has been done into several languages like Spanish [11], French [12], Japanese [13], Arabic [14], Indonesian [15], Chinese [16], Swedish [17], and Dutch [18]. The IES-R was also validated in many countries during the COVID-19 pandemic. Psychological impact of COVID-19 was assessed in China using IES-R [19]. The first- and second-survey respondents' mean IES-R scores were higher than the cut-off values (> 24) for PTSD symptoms. High psychological impact was also realized by the Egyptian population. The mean of the Impact Event scale came out to be 34.3 (S.D. of 15). Out of the total respondents, 41.4% reported the impact as severe. About 34% of respondents said they were more stressed at work, about 55% said they were more stressed financially, and 62.7 percent said they were more stressed at home [20]. More than 50 percent of them felt horrified and helpless. High mean IES-R scores (>24 points) were also reported by both the Chinese and the Spanish respondents. The mean IES-R score for the Chinese participants was 30.69 with SD of 16.21, while Spanish participants reported the mean IES-R score of 27.62 with SD of 18.67 [21]. A comparison study of physical and mental health of general population of U.S. and China associated mental health characteristics with physical symptoms, COVID-19 knowledge and preventive health practices [22]. Stress and depression symptoms were more common in Americans, whereas acute-traumatic stress symptoms were more common among Chinese. Face mask use and demands for COVID-19-related health information were shown to differ, with differing mental health effects. Physical symptoms that might be linked to COVID-19 were linked to poor mental health [22]. The psychological impact of the pandemic was compared between Chinese (encouraging face masks) and Poles (discouraging face masks) using IES-R and DASS-21 scales [19]. Stress, anxiety and depression levels were higher in Polish participants than Chinese participants. The IES-R scores were higher in Chinese respondents (mean score 32.98 with standard deviation of 15.42) than in Polish respondents (mean score 31.14 with standard deviation of 13.59) [6]. Nonetheless, both nations' mean IES-R scores were over 24, suggesting the existence of PTSD symptoms in respondents of both the nations. The IES-R scale was also validated in general population of Philippines during the pandemic [23]. The IES-R mean score was found to be 19.57 with standard deviation of 13.12. The psychological impact of the epidemic was considered moderate to severe by 16.3 percent of responders. The psychological impact of the pandemic

was measured in Vietnamese population also using IES-R [24]. The IES-R mean score was 17.5 with standard deviation of 11.5. This instrument was used in this study to assess post-traumatic stress symptoms (PTSS) of the respondents. 16.4 percent of the respondents had a low degree of PTSS, 5.3 percent had a moderate level of PTSS, and 5.4 percent had severe PTSS.

1.3. Rajyoga meditation

Rajyoga meditation is taught by Brahma Kumaris Spiritual Global University [25]. This spiritual institution is an international non-governmental organization (NGO) in General Consultative Status with the ECOSOC and UNICEF. It is a global network of organisations with 8,500 established centers in over 137 countries and 900,000 regular students that provides free of cost life time meditation training and programs. The institution offers philanthropic services to all irrespective of nationality, religion, caste, creed, gender, etc. Raja Yoga meditation is open to people from all walks of life. This type of meditation doesn't require any rituals or chants, and it can be done anywhere, at any time. Raja Yoga meditation is done with 'open eyes,' making it a diverse, uncomplicated, and easy to perform style of meditation. There are numerous research studies published by Spiritual Application Research Centre (SpARC) wing of Brahma Kumaris spiritual organization that have pointed towards the psychological, physiological and neural benefits of Rajyoga meditation (<https://Bksparc.in/>, n.d.).

1.4. Significance of Rajyoga meditation during and after COVID-19

Meditation and mindfulness can be used a strategy to fears and lessen anxieties [26]. Regular practice of Raja Yoga meditation results in physiological and psychological wellbeing among the practitioners. Short term and long-term Raja Yoga meditators showed significant improvements in heart rate, respiratory rate, systolic blood pressure and diastolic blood pressure after the practice of meditation after every fifteen minutes. The long-term meditators also got rid of addictions and negative attributes. This meditation has shown the reduction in diastolic BP among patients with hypertension [27]. Rajyoga meditation provides relaxation and harmonises mental and physical energy. Thus, it results in better cardiorespiratory endurance of an individual. For determining the aerobic and physical fitness of an individual, the maximum rate of oxygen consumption during exercise (VO₂ max) is one of the parameters. An increase in VO₂ max was observed in Rajyoga meditators [28]. The regular practice of Rajyoga meditation helps in regulating anxiety and cortisol level in heart patients going through coronary artery bypass surgery (U. [29]). Meditation is considered to be useful to relieve stress and enhance cardio-respiratory health. Even a short term Rajyoga meditation intervention reduced anxiety and depression among the patients suffering from anxiety and depression following six weeks of intervention (C. H. [30]). Not only physiological and psychological, but there are also neural evidences of benefits of meditation interventions. In a study observing neural correlates of Rajyoga meditators, they showed high-band strength in the alpha and theta range [31]. Thus, meditation had significant positive effect on frontal and parietal areas of brain responsible for emotion and cognitive processing. The activation differences between meditative and resting states of experienced Rajyoga meditators were also established with the help of multichannel EEG recordings. After meditation, the activations in low alpha frequencies were increased and those in delta frequencies were reduced. The networks associated with the altered activations were the central executive network, the mirroring network and the task-positive and the task-negative network.

The objectives of this study are (1) to propose the translated and validated Hindi version of IES-R that is easier and more compatible for use in the Indian population (2) to test the suggested IES-R scale's validity and reliability in Rajyoga meditators by testing the factorial structure and internal consistency of this scale (3) to assess the psychological health of Rajyoga meditators amid this pandemic to bring forward the role of meditation interventions in increasing the resilience against the psychological crisis.

2. Methods

2.1. Design

The form was circulated through convenience sampling to the Rajyoga meditators through the SpARC (Spirituality and Research) wing of the Brahma Kumaris Spiritual Global University. The organization has large number of regular students coming to learn and practice meditation throughout all the centres globally. The reasons for choosing Rajyoga meditators as subjects were the availability of large sample group, that too during the pandemic and inexpensive convenience sampling procedure.

2.2. Inclusion and exclusion criteria

The Rajyoga meditators with at least one year of meditation experience and bearing no psychological disorders were selected for the analysis.

2.3. Ethical clearance and informed consent

Ethical consent was taken from the Institutional Ethical Committee, CSIO-CSIR, Chandigarh. A presentation was organized to inform the participants about the objectives of the study and to provide instructions to fill the survey form. The informed consent was taken from all the respondents. We did not collect any personal data from the participants to maintain anonymity. At any stage during the survey, participants could opt out.

2.4. Development and dissemination of the online survey form

An online survey form was prepared using Google forms consisting of questions in both English and Hindi languages. The form was sent for language editing and verification for translation and back translation. The translated form was then verified by the subject experts and then circulated through convenience sampling to the Rajyoga meditators through the SpARC (Spirituality and Research) wing of the Brahma Kumaris Spiritual Global University. The survey form was open from Jan 2021 to March 2021.

2.5. Recruitment process and survey administration

The survey form was open for everyone who visited the link. The link of the survey form was sent to the meditators through mail ids and What's app numbers saved in the databases of their respective meditation centres. The survey was announced in the online mode. Google forms was used to create the survey form and the data was stored in the respective Google drive. The survey was voluntary and there were not offered any incentives to participate. The survey form was open from Jan 2021 to March 2021. The respondents were able to review and change their answers through Review option before submitting. The response rates were not calculated. The duplicate database entries having the same user ID were eliminated before analysis and the most recent entries were taken. Only completed questionnaires were analysed. There was not any timeframe given to complete the survey.

2.6. Respondents

A total of 801 Rajyoga meditators participated in the study. Out of these meditators, 478 were women (59.7% of the sampled population), 490 were married (61.2% of the sampled population), 296 were employed (37% of the sampled population). The maximum of them (47.6%) were aged between 30 to 50 years. Most of the meditators (31%) were in the intermediate group (5 to 10 years of meditation experience). **Table 1** shows the frequency and population distribution of demographic data of the respondents.

Table 1
Demographics

Variables	N (%)
Gender	
Male	321(40.1%)
Female	478(59.7%)
Others	2(0.2%)
Marital Status	
Married	490(61.2%)
Unmarried	232(29%)
Widow/widower	55(6.9%)
Divorced	12(1.5%)
Separated	12(1.5%)
Employment	
Employed	296(37%)
Self Employed	210(26.2%)
Not Employed	295(36.8%)
Suffered Covid Symptoms	
Yes	121(15.1%)
No	680(84.9%)
Contact with Covid person	
Yes	173(21.6%)
No	466(58.2%)
Not Sure	162(20.2%)
Travel History	
Yes	14(1.7%)
No	787(98.3%)
Age	
18-30 years	115(14.2%)
30-50years	381(47.6%)
>50 years	305(38.1%)
Experience of Meditation	
1-4 years	184(23%)
5-10 years	248(31.0%)
11-20 years	158(19.7%)
21-30 years	76(9.5%)
>30 years	42(5.2%)
Not given	93(11.6%)

2.7. Analysis

To find out the internal consistency, Cronbach Alpha was calculated for the Hindi version of the IES-R scale and the corresponding subscales. Cronbach's alpha was evaluated using the following criteria: Excellent (0.9), Good (0.8), and Acceptable (0.7) according to the previously established studies [32]. Pearson's coefficients were used to assess the correlation between the subscales. A principal component analysis was run to find out the three-factor solution of the model of the IES-R scale.

3. Results

3.1. IES-R scores

The analysis resulted in an Impact of Event-revised scale sample mean score of 10.01 (with an S.D. of 11.107). The majority of the meditators (90.3%) rated minimal psychological impact as minimal, about 5.1% of them reported mild psychological impact, and only 4.6% of the sampled meditators suffered moderate or severe psychological impact. **Table 2** shows the IES-R scores for Rajyoga meditators. As seen in the **Table 2**, most of the meditators felt normal during the crisis.

Table 2
Hindi IES-R scores for Rajyoga meditators

Level	Frequency	Percentage
Minimal	723	90.3
Mild	41	5.1
Moderate	9	1.1
Severe	28	3.5
Total	801	100.0

3.2. Internal consistency

The Hindi IES-R resulted in excellent internal consistency. The Cronbach's alpha value was 0.91. Cronbach's alpha values for intrusion subscale = 0.83, hyperarousal subscale = 0.81, and avoidance subscale = 0.81 showed good consistency across all three subscales.

3.3. Correlations

Table 3 shows correlation values between the three subscales. Within the three subscales of the IES-R, Pearson correlations were performed to analyse the connections. At the 0.01 level, all of the correlations are significant (2-tailed). As observed in Table 3, there was a high level of measured correlation between every pair of subscales (range 0.56 – 0.81). There were significant correlations of the age of the meditators, experience of meditation, and presence of illness and covid symptoms with IES-R scale scores. Though the overall percentage of meditators suffering severe or extreme severe impact is very less, but out of them, the meditators who were in the age group of 18 to 30 years, who were suffering from COVID symptoms and the beginners (having meditation experience of fewer than 4 years) suffered the highest impact. Table 4 shows the correlation of IES scores with the sociodemographic variables.

3.4. Construct validity

Principal component analysis evaluated the construct validity of the Hindi IES-R. There were three components with eigenvalues greater than one. This matched with the theoretical structure of IES-R scale [10]. The scree plot consisted of one large factor with an eigenvalue of 8.536 followed by two smaller factors with eigenvalue of 2.296 and 1.061 respectively.

None of the correlation coefficients in the SAQ were particularly large, and all of the items correlated pretty well. The KMO statistic value was 0.934, which is superb and the factor analysis was appropriate because Bartlett's measure was extremely significant ($p < 0.001$). Factor loadings > 0.5 were considered significant. The analysis explained 54.06% of the total variance. As shown in Table 5, the three-factor solution based on eigen value greater than one generated an intrusion hyperarousal component with all the items from intrusion and hyperarousal subscales (except items 16 and 21), an avoidance component with all the items from avoidance sub scale (except items 12 and 13), and third component with item 16 only. Item 13 had insignificant factor loading and thus removed. The analysis was done again without this item giving the total variance of 55.36%. The results were still the same after removing this item.

The previous studies have also explained the lack of correlation of item 13 with other items. It has been pointed out that item 13 should be carefully investigated and may need deletion in future studies [15]. This is because the word “numb” in this statement is confusing and misinterpreted. Item 21 has fallen on avoidance subscale in this analysis while this item taps into intrusion sub scale in theoretical model. This is in similarity with the previous research on factor analysis of IES-R scale [15]. Item 12 should have merged into the avoidance factor according to the theoretical model, but instead loaded on the intrusion- hyperarousal factor. This can be because the first part of the statement about feelings taps into intrusion symptoms, while the second part about dealing with the feelings taps into avoidance symptoms. Item 16 has been originally in the intrusion subscale in the theoretical model, but here it has fallen on the third component. This

Table 3
Correlations between the subscales

	Intrusion	Hyperarousal	Avoidance
Intrusion	-	0.81*	0.56*
Hyperarousal	0.81*	-	0.61*
Avoidance	0.56*	0.61*	-

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

Table 4
Correlation of Hindi IES-R scores with socio-demographic variables

Variables	Severe/ Extreme severe impact Count (%)
Age	
18-30 years	6 (5.22%)
31-50 years	15(3.95%)
>50 years	7 (2.29%)
Presence of COVID symptoms	
Yes	10 (8.20%)
No	18 (2.65%)
Meditation experience (in years)	
0-4	15 (5.42%)
5-10	9 (3.63%)
11-20	4 (2.50%)
21-30	0 (0.0%)
>30	0 (0.0%)

Correlations are significant at the 0.01 level (2-tailed).

Table 5
Principal Component Analysis with three-factor solutions (varimax rotation).

Original factors, items	Content	Three- factor		
Hyper arousal		Intrusion Hyperarousal	Avoidance	Strong Feeling
4	Felt irritable and angry.	.746		
10	Jumpy and easily startled.	.777		
15	Trouble falling asleep.	.763		
18	Trouble concentrating.	.691		
19	Reminders caused physical reactions	.659		
21	Felt watchful and on guard.		.637	
Intrusion				
1	Reminders brought back feelings	.685		
2	Trouble staying asleep	.716		
3	Other things making think about it	.724		
6	Thought about it when didn't mean to	.756		
9	Pictures in head	.658		
14	Acting or feeling like back at that time.	.727		
16	Waves of strong feelings			.864
20	Had dreams	.695		
Avoidance				
5	Avoided getting upset		.636	
7	Felt as if it hadn't happened		.522	
8	Stayed away from reminders		.706	
11	Tried not to think about it.		.725	
12	Aware of feelings but didn't deal.	.667		
13	Numb feelings		.462	
17	Tried to remove it from memory.		.605	
22	Tried not to talk about it.		.745	
Eigen Value		8.536	2.296	1.061
% Variance		38.849	49.229	54.060

Loadings of <0.40 have been deleted.

is because the “feelings” term seems to be confusing and everyone may have different perceptions about the word “feelings”.

3.5. Comparison with previous studies in general population during COVID-19

Previous studies have shown large impact and greater score of stress, anxiety and depression among general population of different countries as described in the introduction section.

Figure 1 shows the comparison of percentage of population with minimal, mild and moderate to severe scores of IES-R, along with mean of

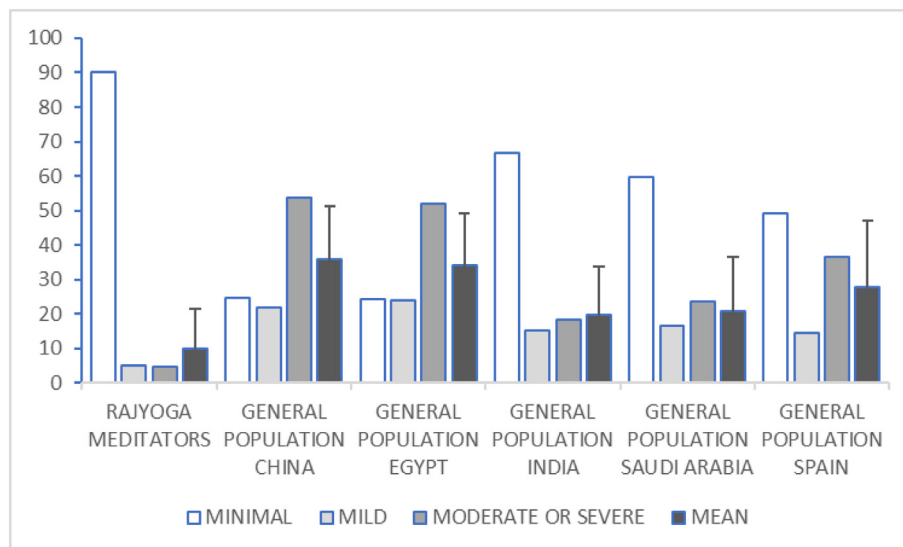


Fig. 1. Comparison of IES-R scores of Rajyoga meditators with those of general population

IES-R scores in Rajyoga meditators with those of general population attained in previous studies.

Thus, it is seen that the Rajyoga meditation helped the practitioners in building resilience against the stress caused by the virus. While most of the meditators were married and employed as per the survey, it also reflects their life chores and responsibilities are same as that of general population, yet they are less prone to stress and anxieties. It has also been shown in young adults of U.S. that greater levels of resilience are capable of attenuating the negative effect of their stress levels [33]. Even the online mindfulness session helped the participants decrease momentary anxiety, stress and COVID-19 concern [34]. Taken together, our study finds out that that when it comes to dealing with pressures, resilience is crucial and meditation interventions help achieve that resilience levels.

4. Discussion

The present study evaluated the internal consistency, correlations, and construct validity of the Hindi translation of IES-R scale in a population of Rajyoga meditators in the initial days of the second wave of COVID-19. The internal consistency of the Hindi IES-R is good, with alpha values ranging from 0.80 to 0.93. We have also suggested a three-factor structure of Hindi IES-R. The three-factor solution explained 54 percent of the total variance with one component merged as intrusion-hyperarousal component, second component as the avoidance component and the third component having only one value of having strong feeling about the disease.

Previously, many studies have analysed the factorial structures of IES-R. This scale was evaluated in research of survivors of life-threatening cardiac episodes, with a focus on the hyperarousal subscale [35]. Whereas the intrusion and avoidance subscale showed high reliability, weaker reliability was shown by the hyperarousal subscale. The study concluded that the hyperarousal subscale's criterion validity required further investigations. Another study looking into the analysis of IES-R in Vietnam veterans found high internal consistency of the scale and high correlations between the subscales [36]. Maximum likelihood estimate was used to conduct a confirmatory factor analysis. But it did not validate the three-component solution related to the three subscales. The exploratory factor analysis was then carried out and single component, two-component, and three-component solutions were provided. Like in our study, the two-component solution (intrusion/hyperarousal and avoidance) fitted the best. The psychometric features of an Arabic-translated version of the IES-R were also investigated for a population of Middle Eastern refugees [37]. Its factor analysis supported a three-component solution that explained 53.8% of the variance. Similarly, the Persian version of IES in a sample of people from Bam after

the 2003 earthquake had good internal consistency [38]. Its factor analysis also concluded a three-factor solution which explained 41.6% of the variance. PCA analysis was also performed in the Arabic translation of the IES-R in a population of medical students undergone quarantine during the COVID-19 pandemic [14]. The three-component solution explained 50.5% of the variance.

The prevalence of COVID-19's psychological impact among meditators was also investigated in this study. As hypothesized, most of the Rajyoga meditators (90.1% of the total sampled population) were resilient towards the psychological impact of the Coronavirus and reported the impact as minimal. In the previous research on the psychological impact of Coronavirus among the general public, the lowest percentage of the sampled participants reporting the impact as moderate to severe was 18.2%. While among the Rajyoga meditators in this study, only 4.7 percent of the meditators have shown the impact as moderate to severe. Meditation experience and IES-R score had a negative connection. As the experience increased, the score (or the impact) diminished. So, meditation played a major role in minimizing the perceived impact of the epidemic.

Though the current study is limited by convenience sampling method and absence of test-retest analysis, it depicts the need of developing and delivering possible therapeutic approaches during, and after the pandemic. Therapeutic approaches are the deliberate interventions provided to manage mental illnesses. Health authorities are worried about the biological and physical repercussions of the outbreak, but the psychological consequences are being ignored. There is an urgent need to deliver validated psychological interventions to different sections of society. The guidelines on emergency psychological crisis intervention were also issued by National Health Commission in China on 27 January 2020 for giving mental health support services to patients and health care workers by trained professionals [39]. This type of public health crisis demands a digital mental health revolution for access of free mental health services to people across various platforms [40]. There can be two possible approaches to assist people suffering from psychological issues: psychotherapy and biomedical therapy. Psychotherapy uses psychological treatments or interventions whereas biomedical therapy involves medication and/or medical treatments to treat psychological disorders. Both the therapies are used in tandem for the treatment of psychological illnesses. Psychotherapies can be provided depending on the individuals and the symptoms experienced by them. The common types of psychotherapies include behavioural therapies, cognitive therapies, humanistic therapies or alternative therapies such as meditation and yoga. Yoga and meditation have acquired popularity as therapeutic programmes for psychological discomfort in the last 25 years. Psychotherapy is useful for a variety of illnesses, according to large-scale

worldwide assessments of scientific studies. Specific therapies have been tested for use with specific disorders. Both the UK and the US regulatory bodies have provided recommendations of these therapies for certain disorders.

The results were compelling but the results did not generalize beyond Rajyoga meditators. Future studies may prospectively follow up the meditation practitioners in general, and the inclusion of test-retest analysis will further validate the results.

5. Conclusion

The Hindi translation of the IES-R scale is a viable tool for quantifying the psychological impact of Coronavirus pandemic in a population of Rajyoga meditators. This scale appears to be a reliable diagnostic and research tool. The translation of IES-R in Hindi and subsequent validation had filled the gap in its ability to analyze the impact of the pandemic among Hindi speaking population. Further researchers are welcome to use this version for assessing the impact of events on the lives of Indians. Moreover, focussing on the benefits of meditation in reducing the traumas caused by the epidemic will lead to the creation of useful complementary strategies and therapeutic approaches.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Informed consent

Before the study, all of the participants signed a consent form.

Data and material availability

Upon request, the corresponding author will make the data supporting the results of this study accessible.

Declaration of Competing Interest

The authors declare that there is no conflict of interest.

Appendix A

Question	English version IES-R	Hindi translation IES-R
1	Any reminder brought back feelings about it.	कोई भी अनुस्मारक मुझे इसकी याद दिलाता था।
2	I had trouble staying asleep.	मुझे सोते रहने में परेशानी होती थी।
3	Other things kept making me think about it.	अन्य परिस्थितियों में भी इसके बारे में सोचा करता था।
4	I felt irritable and angry.	मैं चड़िचड़ा और क्रोधित रहता था।
5	I avoided letting myself get upset when I thought about it or was reminded of it.	मैंने इसके बारे में सोचकर परेशान न होने की कोशिश की।
6	I thought about it when I didn't mean to.	मैंने ना चाहते हुए भी इसके बारे में सोचा।
7	I felt as if it hadn't happened or wasn't real.	मुझे लगता था कि ऐसा नहीं हुआ या यह वास्तविक नहीं है।
8	I stayed away from reminders about it.	मैं इसके बारे में याद दलाने वाली हर चीज़ से दूर रहा।
9	Pictures about it popped into my mind.	इससे सम्बंधित चित्र मेरे दिमाग पर छाए रहते थे।
10	I was jumpy and easily startled.	मैं बेचैन और चौकित रहता था।
11	I tried not to think about it.	इसके बारे में न सोचने की मैंने कोशिश की।
12	I was aware that I still had a lot of feelings about it, but I didn't deal with them.	मैं इससे सम्बंधित अपनी भावनाओं को समझता था लेकिन मैं उनसे उभर नहीं पाया।
13	My feelings about it were kind of numb.	इसके बारे में मैं असंवेदनशील था।

(continued)

Question	English version IES-R	Hindi translation IES-R
14	I found myself acting or feeling as though I was back at that time.	मैंने खुद को ऐसा अभिनय करते या महसूस करते पाया कि मैं ठीक हूँ।
15	I had trouble falling asleep.	मुझे नींद आने में परेशानी होती थी।
16	I had waves of strong feelings about it.	मैं इसके बारे में भावनात्मक हो गया था।
17	I tried to remove it from my memory.	मैंने इसे अपनी स्मृति से हटाने की कोशिश की।
18	I had trouble concentrating.	मुझे ध्यान केंद्रित करने में परेशानी हुई।
19	Reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea or a pounding heart.	इसके अनुस्मारकों ने मुझे शारीरिक प्रतिक्रियाएँ दीं, जैसे कि पसीना आना, सांस लेने में तकलीफ होना, जी मचिलाना या तेज़ धड़कन।
20	I had dreams about it.	मुझे इसके सपने आते थे।
21	I felt watchful or on-guard.	मैंने खुद को चौकनुना महसूस किया।
22	I tried not to talk about it.	मैंने कोशिश की कि मैं इसके बारे में बात न करूँ।

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