

Beneficial effects of a program of Mindfulness by remote during COVID-19 lockdown

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Abstract. – OBJECTIVE: In the emergency context of COVID-19 pandemic and lockdown, mindfulness relaxation techniques can provide a safe and effective strategy to obtain in a reasonably short time some degree of relief from suffering and to guarantee a greater confidence with emotional reactions in the general population.

SUBJECTS AND METHODS: The Mindfulness-Based Stress Reduction program for coping with COVID-19 emergency was designed as an 8-week program during the early phase of lockdown consisting in practice meditation exercises at least once a day guided and structured by certified instructors entered on a free online platform. At the end of the program all participants completed a survey.

RESULTS: A total of 108 surveys were completed (67.6% male; 32.4% female). Despite the difficult moment of lockdown and the fear linked to the pandemic, 61.9% of interviewed subjects declared a state of general well-being from fair to good linked to the practice of mindfulness. Female subjects ($p=0.001$), married subjects ($p=0.05$) and people taking pharmacologic therapy demonstrated ($p=0.009$) significant improvement in daily management of emotions and practical requests during the early phase of the COVID-19 outbreak.

CONCLUSIONS: Mindfulness meditation may be effective in helping people to regulate emotions and to support their mental health during this period of worry and uncertainty.

Key Words:

Mindfulness, COVID-19, Meditation, Women, Psychological health, Survey.

Introduction

The pandemic spread of COVID-19 has decisively changed the lifestyle habits of the worldwide population¹. The impact on the general population and in particular on vulnerable categories (elderly, children and adolescents, people suffering from psychiatric problems, infected subjects

or contacts of infected, infected people-relatives, health workers) takes various forms and different levels of severity.

The emergency situation due to the COVID-19 pandemic can impact on the lives of individuals by determining both a psychological and physical vulnerability. As a consequence, psychiatric or neurological disorders^{2,3}, use of psychoactive substances and cardiological or other internist comorbidities have been observed⁴⁻⁶. Drug-geriatric syndromes interactions are common in long-term care patients⁷, and the elderly are affected by several comorbidities, anxiety and depressive symptoms^{8,9}. Given the evolving psychological burden of the COVID-19 pandemic, there is a need to preserve the well-being, mental health and resilience of people.

The temporal evolution of the pandemic demands several adjustments in order to manage the different phases and the various expressions of discomfort. Anxiety, in particular, may present with multifaceted manifestations, ranging from symptoms related to cognitive functions (concentration, problem-solving and decision-making ability), to emotional and behavioral domains (e.g. restlessness and aggression). After the initial uncertainty and confusion about the mechanisms of viral transmission, when fear of getting sick and being responsible to infect loved ones were prevailing, worries for employment and economic implications of the pandemic have been frequently reported. The future is perceived as uncertain, and the economic and job insecurity contribute significantly to determine stress and the persistence of dysfunctional behaviours¹⁰.

Taking care of people who experienced psychological distress during the first phase has been difficult because of the severity of the event and the high rate of dissemination of the virus, but in the second phase psychological support interventions have been structured and targeted on the specific requests and needs¹¹.

Telehealth utilization has increased dramatically over the past few years due to improvement in technology and the COVID-19 pandemic. People in need of psychological help can be provided with effective and independently managed therapeutic tools after a short training, which can also be administered by remote methods without reducing effectiveness. In particular, indications can be given on relaxation techniques (with the primary target of the modulation of physiological response of arousal) and mindfulness techniques (to improve the management of the response to stress)^{12,13}. Especially in an emergency context, relaxation techniques can provide a safe and effective strategy to obtain results in a reasonably short time and allow individuals experience some degree of relief from suffering and greater confidence with themselves and their emotional reactions. Relaxation techniques are widely tested and validated, suitable for different age groups and easily acceptable to all patients¹⁴⁻¹⁶.

Mindfulness: Definition and Psychological Processes

Our interest is focused mainly on the application of awareness meditation for stress management during the COVID-19 pandemic emergency. Mindfulness meditation draws its origin from the Buddhist tradition of vipassana meditative practices. Given its empirical effectiveness in improving mental and physical well-being, it has been applied in the field of behavioral medicine since the 90s by Jon Kabat-Zinn within a program specifically designed to treat various chronic medical conditions (Mindfulness Based Stress Reduction Program, MBSR, Worcester University, Boston, Massachusetts)¹⁷.

The program includes multiple interventions (psychoeducation, yoga, formal and informal meditation) and is provided in group format on a weekly basis. The in-session practice is implemented by home-assigned practices daily performed with the support of audio guides. Regular practice of at least 30 minutes a day is considered an essential element for the effectiveness of the intervention¹⁸. The most complete definition of mindfulness is based on the integration of three basic “building blocks”: intention to practice, exercise of attention, attitude (openness, curiosity and non-judgment)¹⁹.

Mindfulness trainings detail how intermittent periods of rest are to be recruited to augment cognitive capacities and combat the effects of stress and information overload. The control of atten-

tion, the ability to disengage from emotionally salient stimuli, the capacity to reappraise situations, the awareness of somatic sensations (interoception) and contents of consciousness (thoughts and emotions), the representation of an experiential-Self rather than narrative-Self can prevent psychopathology²⁰.

The regular practice of awareness meditation can induce morpho-functional modifications in many brain areas, resulting in the facilitation of a new way of perceiving, processing and integrating salient information from the internal and external world. The remodulation of the activity and connectivity of the main brain networks (default mode network, salience network, attention network and of sensory self-representation) correlates with the improvement of symptoms in many clinical conditions (depression, generalized anxiety disorder, substance abuse, eating disorders)²¹⁻²³.

Subjects and Methods

Mindfulness Intervention for Coping with COVID-19 Emergency

Although the MBSR protocol is structured and has some fixed active components, it is also flexible, and the teacher is free of making choices in order to meet the more relevant needs of participants. Mindfulness-based interventions can effectively regulate and improve psychological processes underlying symptoms and can be targeted to the specific individual functioning profile^{24,25}.

During the early phase of lockdown, people have been invited by an e-mail message to practice meditation exercises at least once a day, to get greater sense of personal well-being and reduce physical and psychological symptoms. These meditation practices were guided and structured by our certified instructors and have been entered on a free online platform, available for anyone interested in the practice. These practices included some audio and video guides to help people strengthen quietness of mind, patience, and faith and to experience some emotional stability in their mind and in their body. Exercises included paying intentional attention to the sensations of the body, squeezing and relaxing muscles to become aware of the differences between tensing and releasing muscular tension, focusing on sensations of breath, on colours and sounds.

This mindfulness program for coping with COVID-19 emergency was designed as an 8-week

(60 minutes per day, two days a week) program and starting on 16th of March 2020 and was performed through 16th of May 2020. The instructor was a psychiatrist with a mindfulness teacher training certificate. At the end of the program all participants completed a survey.

Study Population

A dedicated survey was prepared to collect demographic and epidemiological variables, medical status and information on lockdown conditions. Participants were recruited via e-mail and had access to the survey between 16th March and 16th May 2020. This timeframe was chosen to assess participants' response during an early phase of the COVID-19 outbreak. Online informed consent was obtained before proceeding with the questions. The informed consent provided two options: "yes" for those who volunteered to take the interview and "no" for those who did not wish to take the interview. Only those who selected the affirmative response were taken to the questionnaire page to complete the survey. The respondents were clearly informed about the aim and objectives of the study and that they were free to withdraw at any time, without giving a reason. Respondent were also made aware that information and opinions provided would be anonymous and confidential.

A total of 108 surveys were completed. Data from all respondents were compiled for this publication. Data confidentiality was assured. Eligible participants were aged 18-75, had lived in Italy for at least four weeks from February 2020, were fluent in both written and spoken Italian, and had at least five years of education. Exclusion criteria were non-Italian language speakers, current hospitalization, psychiatric or neurological diseases.

The questionnaire consisted of two main sections. The first section gathered information on respondents' sociodemographic characteristics including age, gender, marital status, education level, work status. The second section collected information on aspects of daily experience that mindfulness practice has helped to manage in the previous 8 weeks of social isolation due to COVID-19 pandemic.

The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Ethics Committee of Fondazione Policlinico Universitario A. Gemelli IRCCS, Università Cattolica del Sacro Cuore, Rome, Italy (Protocol ID 3275).

Statistical Analysis

Descriptive statistics were used to analyse the general data. All the statistical analyses were carried out using the "Statistical Package for Social Science (SPSS)" program, version 25.0 (IBM Corp., Armonk, NY, USA). Collected data were analysed for normality of distribution using the Kolmogorov-Smirnov test of normality and expressed as mean \pm standard deviation (continuous variables) and as frequencies (n, %) for categorical variables. χ^2 test or Fisher's exact test were used for categorical variables as appropriate. All statistical tests were 2-tailed, and statistical significance was defined as p -value <0.05 .

Results

Among the 108 patients who answered the questionnaire, 67.6% were male and 32.4% female. 9.1% of respondent were aged between 20 and 30 years, 20% between 30 and 40 years, 28.2% between 40 and 50 years, 24.5% between 50 and 60 years and 16.7% between 60 and 70 years. 68.2% were graduated, 41% were married and 62.7% were employed.

Before the 8-week intervention 53.2% of our sample expressed somatic symptoms (headache, muscle pain, stiffness, tingling, feeling of tightness in the chest, palpitations, nausea, digestive difficulties), 61.5% difficulty in concentrating, 76.4% worries about the future, 58.1% trouble in sleeping, 42.8% difficulty in maintaining a correct eating style, 51.4% problems in familiar relationships. 40.9% of our sample was assuming pharmacologic therapies and 78.2% were no smokers. After the 8-week intervention subjects were asked to judge how much mindfulness had helped them to manage different aspects of their daily lives in the previous 8 weeks of social isolation (worry, unpleasant feelings, difficulties in distance relationships, work organization, feelings of closeness to others) and the majority of the sample responded very positively to all aspects (Table I). Despite the difficult moment of lockdown and the fear linked to the pandemic, 61.9% of interviewed subjects declared a state of general well-being from fair to good thanks to the practice of mindfulness. Female subjects ($p=0.001$), married subjects ($p=0.05$) and people taking pharmacologic therapy ($p=0.009$) demonstrated significant improvement in daily management of emotions and practical requests during the early phase of the COVID-19 outbreak.

Discussion

Mass outbreaks such as pandemics are associated with mental health problems requiring effective psychological interventions. Research shows that mindfulness meditation may be effective in helping people regulate emotions and support their mental health during the period of worry and uncertainty linked to the emergency context of COVID-19 pandemic and lockdown^{26,27}. Mindfulness practice improves compassion and connection to inner personal resources of calmness, clarity, and courage to care for each other even in challenging situations. Mindfulness practice also is effective in improving the ability to pay attention to the present moment of experience and in reducing impulsiveness when facing stressful situations. Mindfulness is versatile, adaptable to various administration formats (individual/group/audio guides for autonomous exercise) and administration methods (synchronous or asynchronous remotely) and proves to be an effective tool for promoting resilience in the population^{28,29}.

Our study demonstrated a beneficial effect of a program of Mindfulness by remote during the early phase of COVID-19 lockdown and 61.9% of interviewed subjects declared a state of general well-being from fair to good thanks to the practice of mindfulness. In particular, female subjects, married subjects and people taking pharmacologic therapy demonstrated significant improvement in daily management of emotions and practical requests during the early phase of isolation.

Previous studies have demonstrated that mindfulness has a greater positive moderating effect on the mental health and quality of life of women³⁰⁻³². Negative interpretation bias, or the tendency to interpret ambiguous life events in a negative manner rather than positive or neutral, is a precursor to depression and anxiety. Mindfulness reduces depressive symptoms and anxiety, as well as a number of different negative cognitive biases and allows the acquisition of knowledge and skills by shaping resources that can be effectively used to deal with crisis situations³³.

In our experience mindfulness meditation helped to identify stressors with greater awareness and effectiveness and allowed to acknowledge and use new practical tools to reduce or keep stressor under control³⁴. Validation and normalization of negative emotions had a beneficial effect because it contributed to reduce psychological discomfort, to prevent the progression from worries to fears and even panic, and to avoid dysregulated reactions and dysfunctional behaviors²⁶. Among the aspects of daily experience that mindfulness practice has helped to better manage during social isolation due to COVID-19 pandemic there were thoughts of concern regarding infection, unpleasant feelings given by the condition of social isolation, trouble sleeping and ability to more easily accept certain living conditions that cannot be changed (Table I).

The present study has some limitations. Firstly, by using an online questionnaire the study selects a population that has access to internet which may

Table I. Description of the aspects of daily experience that mindfulness practice has helped to manage during social isolation due to COVID-19 pandemic.

	No way	Little	Quite	Very
Thoughts of concern regarding COVID-19 infection	8.2%	18.2%	44.5%	29.1%
Unpleasant feelings given by the condition of social isolation	6.3%	27.3%	40%	26.4%
Somatic symptoms that can be exacerbated by stress	20.2%	26.6%	36.7%	16.5%
Difficulty concentrating	11.9%	26.6%	42.2%	19.3%
Worries about the future	9.1%	14.5%	58.2%	18.2%
Trouble sleeping	12.7%	29.1%	34.5%	23.6%
Difficulty in maintaining a correct eating style	22.7%	34.5%	35.5%	7.3%
Problems in familiar relationships	16.5%	32.1%	37.6%	13.8%
Difficulties in long distance relationships	24.1%	30.6%	30.6%	14.8%
Organization of new ways of working	19.6%	29%	37.4%	14%
Ability to feel feelings of closeness to those who suffer	8.3%	8.3%	45.4%	38%
Ability to more easily accept certain living conditions that cannot be changed	0.9%	11%	52.3%	35.8%

affect the representativeness of its sample. Nevertheless, the online survey is the best possible case with the current need to maximise social distance under COVID-19 mitigation. Secondly, as the study uses a cross-sectional data, it could not control for unobserved heterogeneity across the respondents. Therefore, the estimates should be interpreted with caution, as associations not implying causality. Future research can design a follow up on our sample once the pandemic will be over. Other limitations of the study are sample size, measuring instruments, emergency conditions with little possibility of planning the intervention, remote adaptation to facilitate autonomous use and compliance with infection containment measures. The role in the emergency must be reduced to simple exercises of concentration on breathing and grounding, while protocols can be implemented in the stabilization phase of the emergency in a global program to promote individual resilience and self-care.

Conclusions

Mindfulness meditation may be effective in helping people to regulate emotions and to support their mental health during this period of worry and uncertainty.

Conflict of Interests

Authors declare no conflict of interest.

Informed Consent

Informed consent was obtained from all the subjects involved in the study.

Authors' Contribution

S.B., A.N., G.M., and M.M. designed the study and wrote the first draft of the manuscript. L.J. and G.S. supervised and added important contributions to the paper. All authors have read and agreed to the published version of the manuscript.

Ethics Committee Approval

The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Ethics Committee of Fondazione Policlinico Universitario A. Gemelli IRCCS, Università Cattolica del Sacro Cuore, Rome, Italy (Protocol ID 3275).

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