



International Conference on
**MULTIDISCIPLINARY
APPROACHES IN SCIENCE**
2021



Conference Proceedings

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A Case-control Study on the Effects of Long-term Meditation on Telomere Length, Quality of Life and Mindfulness

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Meditation involves rigorous spiritual and psychophysical training which can result in a range of benefits including creating a clear, stable, calm mind and increasing focus, self-awareness, relaxation, and tranquility. Increasing evidence suggests that meditation and mindfulness-based practices may have favorable effects on the telomere length, quality of life (QOL) and mindfulness level. This study therefore aimed to measure the relative telomere length, QOL and the state of mindfulness between long-term meditators and controls. Meditators were recruited from meditation centers in Sri Lanka. Age, and gender matched controls (non-meditators) were recruited from the community using purposive sampling. Blood was collected into an Ethylenediaminetetraacetate (EDTA) tube using the venepuncture method. DNA was extracted from the buffy coat using a commercially available kit. Telomere length was measured via quantitative polymerase chain reaction using Absolute Human Telomere Length Quantification qPCR Assay Kit. Socio-demographic data were collected. WHOQOL-BRFE scale including 4 subscales with 26 items scored as '1' to '5' and five facet mindfulness questionnaires (FFMQ) comprising 30 items with five facets rated according to a Likert scale were also administered to all participants. Independent sample t-test was used to compare the mean relative telomere length, QOL and mindfulness level between meditators and controls. 26 of the 36 participants (72.2%) were males and mean age \pm standard deviation (SD) of the meditators and controls were 42.78 ± 9.8 and 42.83 ± 9.78 years, respectively. Telomere length (meditators: mean \pm SD= 10.32 ± 1.10 ; controls: mean \pm SD= 6.82 ± 0.65 ; $p=0.010$) and total mindfulness score (meditators: mean \pm SD= 147.56 ± 21.41 ; controls: mean \pm SD= 127.30 ± 9.74 ; $p=0.009$), were significantly higher in meditators than controls. QOL scores (meditators: mean \pm SD= 100.38 ± 9.48 ; controls: mean \pm SD= 93.30 ± 9.60 ; $p=0.070$) was not significantly different between meditators and controls. When considering the subscales, observing (meditators: mean \pm SD= 29.33 ± 7.00 ; controls: mean \pm SD= 23.90 ± 5.68 ; $p=0.037$), describing (meditators: mean \pm SD= 33.22 ± 4.02 ; controls: mean \pm SD= 28.20 ± 3.88 ; $p=0.004$) and non-reacting (meditators: mean \pm SD= 27.72 ± 4.46 ; controls: mean \pm SD= 23.60 ± 3.88 ; $p=0.022$) scales of the FFMQ and the psychological scale (meditators: mean \pm SD= 26.61 ± 2.40 ; controls: mean \pm SD= 22.80 ± 3.90 ; $p=0.009$) of the QOL were significantly higher in meditators compared to non-meditators. The findings of this study suggest that long-term meditation practice may have potentially beneficial effects on the state of mindfulness and telomere length.

Keywords: Telomere length, Quality of life, Meditation