



Association between Chanting, Emotional Regulation and Quality of Life among Middle Adults: A Comparative Study

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ABSTRACT:

Background: The psychological relevance of chanting (be it spiritual or religious) is of significant value even today. With enough research done in the field, the gender differences among chanting and non-chanting groups still remains largely unexplored. **Objective:** Based on this, a randomized study was conducted in India to understand the association between chanting, emotional regulation, and quality of life among male and female middle adults. **Materials and method:** Self-administered questionnaires including Emotional Regulation Questionnaire (Gross & John, 2003) and World Health Organization- Quality of Life (Brief version) were administered on 109 Indian middle adults aged 40-60 years (males=53, females=56). **Statistical tools used:** Independent Sample T-Test and Pearson's Product Moment Correlation. **Results:** Results revealed that middle adult male chanters are high on physical health domain of quality of life as compared middle adult male non-chanters while middle adult female chanters are high on the use of cognitive reappraisal as an emotional regulation strategy, physical health, and psychological domain of quality of life, and overall quality of life as compared to middle adult female non-chanters. Another important finding was that among middle adult males there is a significant positive correlation between cognitive reappraisal and overall quality of life along with its three domains including physical health, psychological and environment while among middle adult females there is significant positive correlation between cognitive reappraisal and physical health, psychological domain, and overall quality of life. **Conclusion:** Chanting affects emotional regulation and quality of life differently among both genders and there is a gender difference between the level of correlation between emotional regulation and quality of life among middle adults.

Keywords: Chanting, Emotional Regulation, Quality of life, Middle Adults

1. Introduction:

Chanting refers to a practice that involves the repetition of a specific word, phrase, or syllables which in some cultures is referred to as a mantra. It has been a long universal tradition to repeat a sacred phrase/mantra in order to quiet the mind and develop focused attention (Bormann, Hurst & Kelly, 2013). Different traditions and cultures approach this practice differently (Perry, Polito, Thompson & Sankaran, 2021). Some may choose to practice it silently or vocally, independently or in a group, or use a responsive style wherein one individual leads the chant and others repeat after the individual in unison (Strother, 2021). It frequently goes along with spiritual rituals and may involve shared belief structures, but it is also used in secular contexts (Lynch et al., 2018). Chanting, like meditation and other relaxation techniques, is considered as a non-pharmacological intervention to psychological distresses and even general well-being and enhancement of life. It is also considered as an aspect of complimentary alternative medicine (CAM) due to its influence on the mind-body relationship (Pal, 2002). All this has led the study of psychological effects of chanting become a subject of considerable attention (Simpson, Perry & Thompson, 2021). In this study, an attempt has been made to study the effects of chanting on psychological factors like emotional regulation and quality of life among middle adults. The term "emotional regulation" describes the extrinsic and intrinsic mechanisms in charge of monitoring, evaluating, and modifying emotional reactions—particularly their intense and temporal features—to achieve goals (Gross, 2015). Chanting, in research conducted by Zhang, Peng & Chen (2022), exhibited a relationship with modulation of emotional evaluation towards a stimulus by altering its initial and later neural processing suggesting a relationship between the practice of chanting and emotional interpretation of affective experiences in life. The wellbeing of a population or an individual in terms of both favorable and unfavorable aspects of their existence at a specific time is referred to as their quality of life (Teoli & Bhardwaj, 2022). The social effects of group chanting, the physiological advantages of chanting practices, such as improved cognitive abilities, and the reduction of stress caused by the parasympathetic nervous system's influence on chanting all have the potential to have an impact on quality of life (Perry, Polito, Sankaran & Thompson, 2022). Figure 1 is loosely adapted from the research conducted by Simpson, Perry and Thompson (2021) who highlighted the importance of different components of chanting that lead to various psychosocial benefits creating a holistic chanting experience. It is this association that suggests that convergence of multiple components of chanting lead to a holistic chanting experience (Perry, Polito & Thompson, 2021).

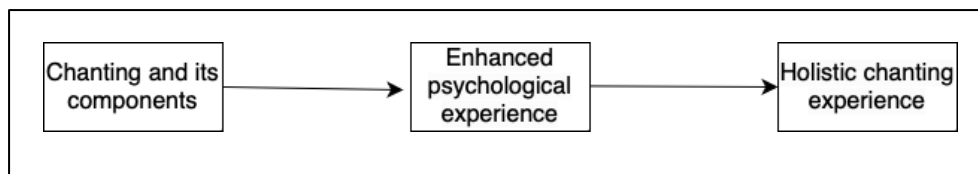


Figure 1

Chanting and

psychological characteristics converge to form a holistic chanting experience.

Several research in east (including India) have been conducted that has studied the effects of different specific chants and its psychological effects. For example, W.J., et al (2021) conducted research to assess the stress reduction effectivity of mantra “Hare Krishna Hare Rama” through a randomized controlled study among 30 female nurses in Chennai. Through an intervention wherein the experimental group was asked to practice the chant for 45 days for 20 minutes, it was found that as compared to control group they showed a significant decrease in levels of serum cortisol and salivary amylase. Therefore, it can be concluded that chanting has a significant effect on stress reduction especially among female nursing professionals. Samajdar and Mukherjee (2020) also conducted a prospective study examining the impact of chanting the Gayatri Mantra on young athletes' attention, memory, anxiety, and mental state. They found that the group that meditated showed an improved mental state as compared to the control group. Amin et al (2016) conducted a comparative control group study to understand the psychological effects of Om chanting on women between the age of 50-60 who have hypertension. The intervention group was asked to chant Om for 6 months under the supervision of a yoga instructor while the control group got no intervention. Results showed that intervention group women showed significant decrease in blood pressure, anxiety and depression. Therefore, it is concluded that people om chanting has a positive psychological contribution on elderly women who have hypertension. Das and Anand (2012) conducted a study in Agra to assess whether galvanic skin response is increased through the practice of prayer and meditating “om” for thirty minutes (combined) for three days. They selected 20 students for this study and analyzed their pre and post data. It was found that the level of stress reduced through the increase of galvanic skin response upon the combined practice of prayer and meditation. Therefore, it can be concluded that prayer and meditation (through the chant of om) can lead to physiological changes among individuals. While Indian research has mostly focused its attention on specific chants, western research has studied the psychological influence of different chants collectively. Like Perry, Polito, Sankaran and Thompson (2022) conducted research in which they identified that regular chanters from 32 different countries (a sample of approximately 450 subjects) differed in the psychological outcomes they experienced depending on the different aspects of chanting. Among many inferences, they found that participants who practised repetitive prayer reported lowered levels of mind wandering. Along with this, they found an indirect relationship between quality of life with intention and engagement of chanting through variations in their altered states of consciousness and cognitive benefits. Overall, this research highlighted the significance of psychological impact of chanting across a variety of practices and traditions. Lee (2021) studied the influence of chanting on psychological factors including wellness, well-being, and stress. Through a qualitative study ten chanters who chanted were interviewed on these psychological factors and it was found that the practise of chanting elevated their sense of wellbeing and wellness and reduced their stress.

Previously in terms of emotional regulation and chanting, Zhang, Peng and Chen (2022) conducted a study providing electro-physiological and behavioural proof for how chanting Om regulates the emotional processing of a stimulus that is negative in China. They selected thirty-three students and recorded their event-related potentials and late positive potential towards neutral and negative stimuli. They found that chanting modulated the subjects' evaluations of affectivity towards negative stimuli and altered early visual and late neural processing of the stimuli. Gao, et al (2020) conducted research in Hong Kong to understand the relationship between repetitive religious chanting and fearful stimuli and how it leads to the formation of positive emotional schema. They found that subjects who practiced religious chanting to counterbalance fearful situations showed variations in their structural and neural networks of certain specific brain areas including increased brain activity in left parietal lobule, prefrontal cortex, fusiform gyrus, left amygdala, midbrain and thalamus. Therefore, it can be concluded that chanting (of religious nature here) can help in the effective formation of positive patterns of thought when encountered with stressful situation thus enhancing coping ability of individuals. More broadly, Kiken and Shook (2012) conducted a study to understand the role of mindfulness in regulating cognitions that are negatively biased further resulting in reduced emotional distress. They analyzed the research problem through their proposition of a model and testing it through the descriptive statistical tools of correlation, mean and standard deviation. Results confirmed the positive role of mindfulness in regulating negatively biased cognitions therefore, reducing emotional distress. Therefore, it can be concluded that mindfulness as a component can be actively inculcated in techniques for emotional distress reduction.

Different aspects of quality of life have also been studied in its relationship with different aspects of chanting. For example, Simpson, Perry and Thompson (2021) during the pandemic conducted research to understand the psychosocial effects of vocal chanting through the online mode as compared to live chanting. The psychosocial effects they aimed at included stress, mood, and social connectedness. They found that individual chanting was as useful as group chanting in terms of their psycho-social benefits among people. Results showed that when compared to the online control activity, online chanting significantly reduced stress and increased good affect. Those who participated in group chanting also reported feeling closer to their fellow chanters than those in the control group. Nonetheless, regardless of the circumstances, individuals felt generally connected to one another. The study offers proof that, whether done individually or in a group, online chanting may be a helpful psychosocial intervention.

While a lot of research that study chanting's effect on psychological level among middle adults have been conducted insofar (like mentioned above), there are some reasons as to why this research is still relevant in today's time. Firstly, a specific pattern has been observed across research conducted on psychological effects of chanting in India as opposed to other western and eastern countries. The research conducted in India mostly has targeted specific chants like “om” chanting, gayatri mantra (GM) chanting, etc. so there is a dearth of research on collective chants and its combined psychological effect as opposed to non-chanting groups. Therefore, to diversify the effectiveness of chanting in India, an attempt was made to inculcate the western approach to the Indian setting. Secondly, chanting in India was earlier seen as a religious practice but in recent times, spiritual chanting independently has become

popular. An attempt was made to combine spiritual and religious chanting to evaluate whether there is a significance between both combined. Thirdly, there is not much research that has considered the gender differences between male and female chanters in terms of emotional regulation and quality of life. Fourthly, considering how chanting practically requires no cost, lower SES community can benefit from the practice of chanting (with or without religious backing) on a more psychological level in terms of emotional regulation and enhancement of quality of life based on what affects a specific gender population more. Lastly and more broadly, keeping in mind the Indian context and the already well-established culture for chants, understanding the intricacy of them can help understand the underlying reasons for a chant to work effectively for people, thereby finding culture free ways of accommodating them more frequently and mindfully in therapeutic settings.

2. Methodology:

2.1 Sample selection

The sample in the research included 109 participants (males=53, females=56) based on an inclusive and exclusive criterion. The common inclusive criteria included being Indian participants residing in India between the age group of 40-60 years. However, for chanting group, the participant must have been chanting any phrase of preference on a regular basis for a minimum of 6 months while in the case of non-chanting group, the participant must have never performed any type of chanting practice. Exclusive criteria included non-resident Indians, other age groups other than 40-60 years, chanting group who have been practicing chanting for less than 6 months were not included in the study.

2.2 Study Design

The study employed a randomized descriptive research design. A questionnaire including consent form (that assured confidentiality and anonymity), basic demographic details (including gender, marital status, chanting specific details), Emotional Regulation Questionnaire by Gross and John (2003) and WHO Quality of Life-Brief Version (WHOQOL-BREF) was circulated at random at different settings. On an average each questionnaire took 7-8 minutes to be filled. No incentive was provided to the participants. All responses were collected in the month of February, March, and April of 2023.

2.3 Assessments

- 1) **Emotion Regulation Questionnaire (ERQ) by Gross & John:** To assess individual variations in the application of the two emotion regulation techniques of cognitive reappraisal and expressive suppression, Gross and John developed the Emotional Regulation Questionnaire (ERQ) in 2003. Each subscale's item scores are added together to determine the overall score for the ERQ, with higher scores suggesting greater use of the corresponding emotion control approach. For Reappraisal and Suppression, the average alpha reliability was .79. Over a period of three months, both scales' test-retest reliability was .69. The ERQ can be applied in both research and clinical settings as a valid and reliable measure of emotional regulation techniques.
- 2) **WHO Quality of Life- Brief Version (WHOQOL-BREF):** The World Health Organization developed the WHOQOL-100 Quality of Life assessment which included hundred items in the questionnaire in order to understand 24 facets of quality of life. Then a shorter/brief version of the tool was developed from it as WHOQOL- BREF (2004). This version consists of 26 items in Likert format and covers four main domains namely Physical Health (Domain 1), Psychological domain (Domain 2), Social Relationships (Domain 3) and Environment (Domain 4). The instrument has an internal consistency of 0.76 in healthy population for the physical health domain, 0.67 for psychological health domain, 0.74 for social relationship domain and 0.56 for environment domain. The Test-Retest reliability coefficients ranged from 0.51 to 0.81.

2.4 Objectives

1. To study the employment of cognitive reappraisal as an emotional regulation strategy among male chanting and non-chanting group
2. To study the employment of expressive suppression as an emotional regulation strategy among male chanting and non-chanting group
3. To study domain-wise and overall quality of life among male chanting and non-chanting group
4. To study the employment of cognitive reappraisal as an emotional regulation strategy among female chanting and non-chanting group
5. To study the employment of expressive suppression as an emotional regulation strategy among female chanting and non-chanting group
6. To study domain-wise and overall quality of life among female chanting and non-chanting group
7. To study the relationship between emotional regulation and quality of life among male middle adults
8. To study the relationship between emotional regulation and quality of life among female middle adults

2.5 Hypothesis

H1: There is no significant difference between the employment of cognitive reappraisal as an emotional regulation strategy among male chanting and non-chanting group

H2: There is no significant difference between the employment of expressive suppression as an emotional regulation strategy among male chanting and non-chanting group

H3: There is no significant difference between domain wise and overall Quality of Life among male chanting and non-chanting group

H4: There is no significant difference between the employment of cognitive reappraisal as an emotional regulation strategy among female chanting and non-chanting group

H5: There is no significant difference between the employment of emotional suppression as an emotional regulation strategy among female chanting and non-chanting group

H6: There is no significant difference between domain wise and overall Quality of Life among female chanting and non-chanting group

H7: There is no significant relationship between Emotional Regulation and Quality of Life among male middle adults

H8: There is no significant relationship between Emotional Regulation and Quality of Life among female middle adults

2.6 Statistical analysis

Data was analyzed using Statistical Package for Social Sciences Software (SPSS) version 29.0.1.0 (171). As per the assumptions and conditions of the Central Limit Theorem (Duranczyk, Loch and Stottlemyer, 2013), the data was sampled randomly, all sample values obtained were independent of each other and the sample size was less than 10% of the target population. The data was also checked for normal distribution by confirming that each variable including the demographic middle adult male and female group in terms of chanting and non-chanting on all variables- cognitive reappraisal, emotional regulation, domain 1 of quality of life (physical health), domain 2 of quality of life (psychological), domain 3 of quality of life (social relationships), domain 4 of quality of life (environment) and quality of life lied between -2 and +2 on kurtosis and skewness (George and Mallery, 2010).

Based on this, parametric statistics were employed. Descriptive statistics reflecting basic frequency tables were calculated followed by inferential statistics including Independent t-test to assess significant differences between male chanting and non-chanting group across cognitive reappraisal, emotional regulation, domain 1 of quality of life (physical health), domain 2 of quality of life (psychological), domain 3 of quality of life (social relationships), domain 4 of quality of life (environment) and quality of life and Pearson's Product Moment Correlation to assess the significant relationship between emotional regulation and quality of life among middle adults males and middle adult females respectively.

As additional weather satellites are deployed into orbit and technology advances, the science of weather forecasting improves. Satellites, ships, aeroplanes, weather stations, buoys, and gadgets dropped from planes or weather balloons are all used by meteorologists. There are two primary methods of forecasting used by climatologists and meteorologists: deterministic and probabilistic, both of which have various subsets. A deterministic prediction forecasts a specific event that will occur at a certain time and location, such as a hurricane's arrival or a tornado's touchdown.

Probabilistic weather predictions indicate the likelihood of weather occurrences occurring in a specific place over a specific time period, such as a storm lasting a few days. Climate change caused by excess greenhouse gases in the atmosphere, on the other hand, frustrates forecasters since it becomes more difficult to predict whether that varies due to any outside influence that does not follow seasonal trends or averages.

3. Results

The demographics of the total number of participants (n=109) reflected that 46.8% (n=51) were aged between 40-50 years while 58% (n=58) belonged to 50-60 years age range. In terms of gender 48.6% (n=53) of them were male and 51.4% (n=56) female. The data suggested that 70.6% (n=77) of the participants were chanters therefore, belonged to the "chanting group" of the study while 29.4% (n=32) of the participants were non-chanters belonging to the "non-chanting" group. Table 1 describe the demographic distribution.

Table 1: Demographic distribution of the study sample

	No. of participants	
	n	%
Age Range (in years)		
40-50	51	(46.8%)
50-60	58	(53.2%)
Gender		
Male	53	(48.6%)
Female	56	(51.4%)
Chanter		
No	32	(29.4%)
Yes	77	(70.6%)

In order to statistically analyze the first six hypotheses, Independent Sample T-test was calculated. In the case of **hypothesis 1**, with t-value of .646 and p value of .521 ($p > 0.05$) the null hypothesis of **accepted** therefore suggesting there is no significant difference between the employment of cognitive reappraisal as an emotional regulation strategy among male chanting and non-chanting group. Similarly, even in the case of **hypothesis 2**, the t-value of .514 and p-value of .610 ($p > 0.05$) **accepted** the null hypothesis suggesting no significant difference between the employment of expressive suppression as an emotional regulation strategy among male chanting and non-chanting group. Both these hypotheses (1 and 2) collectively reflect the insignificant difference of emotional regulation strategies when compared between male chanters and non-chanters suggesting a weak role of chanting in emotional modulation.

Hypothesis 3, however, was **partially rejected**. In the domain wise comparison, it was found that there is a significant difference between male chanters and non-chanters in terms of the domain of physical health of quality of life with t-value of 2.910 and p value of .006 ($p < 0.005$). The mean of 23.66 among male chanters (greater than 21.38 among male non-chanters) suggests male chanters have a significantly higher quality of life in the domain of physical health than male non-chanters. In the other domains and an overall quality of life comparison, no significant results were found. For the male chanting and non-chanting group, calculated scores are presented in Table 2.

Table 2: T-test results comparing male chanters and non-chanters across all variables

	Chanter	Mean	SD	t-value	df	p value
Cognitive Reappraisal	Yes	31.00	8.320	.646	50.816	.521
	No	29.81	5.085			
Expressive Suppression	Yes	19.59	4.918	.514	50.617	.610
	No	19.00	3.493			
Domain 1	Yes	23.66	2.892	2.910	44.879	.006
	No	21.38	2.711			
Domain 2	Yes	21.31	3.560	1.144	38.121	.260
	No	20.05	4.165			
Domain 3	Yes	8.00	2.369	.954	48.124	.345
	No	7.43	1.964			
Domain 4	Yes	25.78	4.654	-.097	44.152	.923
	No	25.90	4.471			
Overall Quality of Life	Yes	87.16	11.453	1.603	46.327	.116
	No	82.33	10.200			

For the comparison of female chanting and non-chanting group, it was found that there was significant difference between the employment of cognitive reappraisal as an emotional regulation strategy among female chanting and non-chanting group with t-value of 2.717 and p value of .015 ($p < 0.005$) therefore **rejecting hypothesis 4**. The female chanting group had a higher mean as compared to female non-chanting group (31.96 > 26.64) suggesting a higher employment of cognitive reappraisal among female chanters.

Hypothesis 5 with a t-value of -1.317 and p value of .202 ($p>0.005$) **accepted** the null hypothesis concluding that there is in fact, no significant difference between the employment of emotional suppression as an emotional regulation strategy among female chanting and non-chanting group.

In the case of **hypothesis 6**, the t-value and p value of 3.933 and .001 ($p<0.05$) respectively in domain 1 (physical health) and t-value of 4.010 and p value of .001 ($p<0.05$) in domain 2 (psychological domain) of quality of life suggested a significant difference on both these domains of quality of life between female chanting group and non-chanting group. In domain 1, a mean value of 23.22 as compared to 19.36 between female chanters is higher than female non-chanters in terms of their perception of quality of life in the aspect of physical health. Similarly, a higher mean value of 21.58 between female chanters in psychological domain of quality of life suggests better perception of psychological aspect of quality of life. The overall quality of life turned out significantly different for both groups too with a t-value of 2.959 and p value of .008 ($p<0.05$). However, in the other two domains of quality of life, no significant difference between the two groups was found. Therefore, hypothesis 6 was **partially rejected**. For the cumulative scores of female chanting and non-chanting group, refer to Table 3.

Table 3: T-test results comparing female chanters and non-chanters across all variables

	Chanter	Mean	SD	t-value	df	p value
Cognitive Reappraisal	Yes	31.96	6.234	2.717	16.350	.015
	No	26.64	5.714			
Expressive Suppression	Yes	15.87	4.669	-1.317	21.274	.202
	No	17.45	3.267			
Domain 1	Yes	23.22	3.801	3.933	21.307	<.001
	No	19.36	2.656			
Domain 2	Yes	21.58	2.896	4.010	14.857	.001
	No	17.55	3.012			
Domain 3	Yes	8.91	3.175	.565	16.883	.579
	No	8.36	2.803			
Domain 4	Yes	28.09	4.880	.052	14.810	.959
	No	28.00	5.099			
Overall Quality of Life	Yes	89.89	12.055	2.959	19.327	.008
	No	80.09	9.224			

Pearson's product-moment correlation coefficient, for the parametric statistical analysis, was used to calculate to explore the relationship between emotional regulation and quality of life among male middle adults. As per the correlation matrix, one of the strategies of emotional regulation-cognitive reappraisal revealed a significant positive correlation with domain 2 (psychological), domain 3 (social relationships), domain 4 (environment) and overall quality of life with r value of .375 at p of 0.006 ($p<0.01$), .627 at $p<0.001$ ($p<0.01$), .487 at $p<0.001$ ($p<0.01$), .544 ($p<0.01$) respectively. However, no significant relationship was found between expressive suppression and quality of life therefore, **hypothesis 7** was **partially rejected**. Table 4 presents the correlation matrix for this hypothesis.

Table 4: Correlation between Emotional Regulation and Quality of Life among Middle Adult Males

Variables		Domain 1	Domain 2	Domain 3	Domain 4	Overall Quality of life
Cognitive Reappraisal	Pearson Correlation	.216	.375**	.627**	.487**	.544**
	Sig. (2-tailed)	.120	.006	<.001	<.001	<.001
Expressive Suppression	Pearson Correlation	-.159	-.182	.226	.100	-.018
	Sig. (2-tailed)	.254	.192	.103	.477	.900

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

I.* Correlation is significant at the 0.05 level (2-tailed).*I*

For the **hypothesis 8** that aimed at calculating the correlation between emotional regulation and quality of life among middle adult females, as the Table 5 suggests, cognitive reappraisal was significantly, positively correlated with domain 1 with r value of .279 at $p=0.37$ ($p<0.05$) and domain 2 of quality of life with $r=.403$ at $p=.002$ ($p<0.01$). It was also found that cognitive reappraisal was also significantly, positively correlated with overall quality of life ($r=.320$, $p=.016$; $p<0.01$). However, it was found to be insignificantly correlated with the other variables. Therefore, hypothesis 8 was **partially rejected**.

Table 5: Correlation between Emotional Regulation and Quality of Life among Middle Adult Females

Variables		Domain 1	Domain 2	Domain 3	Domain 4	Overall Quality of Life
Cognitive Reappraisal	Pearson Correlation	.279*	.403**	.041	.204	.320*
	Sig. (2-tailed)	.037	.002	.764	.132	.016
Expressive Suppression	Pearson Correlation	-.139	-.194	.102	-.079	-.092
	Sig. (2-tailed)	.307	.153	.455	.561	.501

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

*I**. Correlation is significant at the 0.05 level (2-tailed).

In the present study, it is evident that some hypotheses yielded significant results while others did not. The hypotheses that did yield significant statistical results have been discussed further. Hypothesis 3 partially revealed that **there is a significant difference between male middle adult chanting group and non-chanting group on the physical health domain of quality of life**, thereby suggesting that the practice of chanting is more effective than not chanting in terms of the contribution it makes on how they understand the quality of physical health in their lives. This is supported by the conduction of a controlled study in Bangalore, India in which researchers found that individuals who chanted “om” exhibited an increase in the parasympathetic activity of the nervous system, encouraged relaxation and promoted tranquility (Inbaraj et al, 2022).

Hypothesis 4 highlighted that **female chanting group exhibited high employment of cognitive reappraisal as an emotional regulation strategy as compared to female non-chanting group**. This suggests that chanting does affect how middle adult women through the reduction of sensation and behavioral manifestation of negative emotions without increasing physiological activation (Cutuli, 2014). A systematic review conducted in 2022 concluded that positive cognitive reappraisal is favorably correlated with a number of resilience-related outcomes and moderates the relationship between stresses and adverse outcomes (Riepenhausen et al., 2022).

Hypothesis 6 was partially rejected inferring that **there is a significant difference between female chanting group and non-chanting group on certain domains of quality of life including physical health and psychological domain along with overall quality of life**. This finding was in congruence to a study conducted in Kerala wherein the researchers through a pre-test post-test model found reduction in hypertension, stress, anxiety, and depression among middle adult women aged between 50-60 years through the practice of chanting (Amin, 2016). Chanting has also been found to enhance physical health by improving quality of sleep among elderly urban Indian women (Metri et al., 2020).

Hypothesis 7 suggested a **significant positive correlation between cognitive reappraisal and overall quality of life along with its three domains including physical health, psychological and environment independently among middle adult males**. A study conducted by Manju and Basavarajappa (2017) was in congruence to these findings as it found that cognitive reappraisal does in fact improve an adult’s quality of life. In terms of psychological quality of life and cognitive reappraisal, this finding was supported by research that inferred that males who employed cognitive reappraisal more frequently experienced a decrease in “depressive daily life events” (Perchtold et al, 2019). Furthermore, cognitive reappraisal has also been found to increase with age and impact mood favorably (Masumoto et al., 2016).

Hypothesis 8 suggested a **significant positive correlation between cognitive reappraisal and physical health among middle adult females**. Recent research conducted in the United States furthermore found that the use of cognitive reappraisal as an emotional regulation strategy has been indirectly related with decreased metabolic and inflammatory dysregulation, as well as lowered allostatic load (Ellis et al., 2019). A **significant positive correlation between cognitive reappraisal and psychological quality of life and overall quality of life** is also supported by several research. For example, Preston et al. (2022) found cognitive reappraisal to be negatively correlated with depression and anxiety among older women. A study also highlighted the role of an adaptive coping strategy like that of cognitive reappraisal in the promotion of positive psychology and improved quality of life (Rey & Extremera, 2016).

4. Conclusion

In conclusion, the gender specific comparisons partially yielded significant results since middle adult male chanters scored significantly higher only physical health domain of quality as compared to middle adult male non-chanters. they exhibited insignificant results when compared based on cognitive reappraisal, expressive suppression, psychological domain of quality of life, quality of social relationships as a domain of quality of life, quality of environment and an overall quality of life. Among middle adult females, chanting group scored significantly high on the use of cognitive reappraisal as an emotional regulation strategy, physical health, and psychological domain of quality of life, and overall quality of life as compared to middle adult female non-chanters. In terms of correlation between emotional regulation and quality of life separately calculated for females and males, it was found that middle adult males were significantly positively correlated between cognitive reappraisal and overall quality of life along with its three domains including physical health, psychological and environment except for quality of social relationships. In the case of middle adult females, there was a significantly positively correlation between cognitive reappraisal and physical health, psychological domain, and overall quality of life, for both groups expressive suppression was found to be insignificantly correlated with quality of life and its domains.

Some of the limitations of the study were that the age group of 40–60-year-old Indians. It was also observed that participants wished to fall in the category of “chanting group” without being a consistent chanter. Considering the religious and cultural diversity of India, these factors were not taken into consideration in the research. Due to low financial and other resources, the study was limited to a small sample size. A larger sample size may have yielded more conclusive results.

Some of the recommendations include the following- Considering the inclination of Indian population towards different types of chanting practices and its gender-specific psychological benefits among middle adult population, intervention programmes be set for people that help individuals enhance their psychological well-being. Secondly, the age of the middle adult population comes with the possibility to experience an accumulated stress that has built up over time (Seawell et al., 2014), chanting can positively help relieve that stress. Thirdly, chanting can be combined with psychological therapeutic interventions including meditation, Mindfulness-Based Stress Reduction (MBSR), etc in a more gender-specific manner. Lastly, considering the cost-effectiveness of chanting and its overall positive effects on emotional regulation and quality of life, it can prove to be beneficial to low-income groups as well.

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