

Melodies for the gut : A Randomised Double-Arm Pilot Study to assess the effect of Mantra Therapy with Hymn (prayer) on Gastrointestinal Quality of Life Index

Research Article

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Abstract

Background: *Manipur Chakra*, situated in the naval region, governs the digestive health and affects the functions of the abdominal organs. Intoning the *Beeja* mantra of *Manipur Chakra* may activate its vitality and dormant potential. The study assesses the effect of *Beeja* Mantra therapy on gut health using the Gastrointestinal Quality of Life Index (GIQLI) scale. Materials and Method: A randomised controlled trial was conducted with 50 individuals aged 20 to 60 who had mild gastrointestinal symptoms and provided written informed consent. Participants were randomised into two groups; the study group (n=18) who practiced *Ram Beeja mantra* chanting 108 times along with the *Ram Raksha Stotra* daily once and the control group (n=21) who practiced *Nirvan Shatakam* daily once from October to November 2023. The GIQLI Scale was employed to assess the outcomes. Statistical analysis was performed using Friedman ANOVA and Mann-Whitney U test. Results: The study group exhibited a substantial and statistically significant improvement in core symptoms ($p<0.001$), physical symptoms ($p<0.001$), psychological symptoms ($p<0.001$), social signs ($p<0.001$), and disease-specific symptoms ($p<0.001$), with a significantly large effect size of 1.000. It exhibited a significantly greater mean difference than the control group, with a significant p-value for Domains 1, 2, 3, and 5, however Domain 4 did not show a significant difference between the two groups, as indicated by a non-significant p-value (0.349, NS). Conclusion: Mind-body interventions like mantra therapy may enhance the gastrointestinal quality of life index scale. They may serve as a complementary, low-cost, and high-yield techniques to enhance gut health.

Keywords: Gut health, Mantra therapy, *Ram Beeja Mantra*, *Ram Raksha Stotra*.

Introduction

Human body illness incorporates psychological and emotional elements in addition to physiological and structural ones. This characteristic of disease distinguishes humans from machines. Affected individuals' minds and bodies interact, leading to deterioration in both their psychological and physical health (1). Gastrointestinal (GI) health being central to our overall health and well-being, impacts immune function and even our mood and mental health along with digestion and absorption of nutrients and fluid. The gastrointestinal (GI) ailments irritable bowel syndrome (IBS), inflammatory bowel diseases (IBDs), and severe diarrhoea are among those attributed to altered gut flora. SIBO, or small intestinal bacterial overgrowth, is a

condition characterised by the overgrowth of colonic-type flora in the small intestine (2).

The literature study shows considerable global incidence of functional gastrointestinal diseases such as irritable bowel syndrome (IBS), functional dyspepsia, and persistent constipation. More than forty percent of people worldwide encounter gastrointestinal issues, such as diarrhoea, irritable bowel disease (IBS), constipation which have prevalence rates of 11.7%, 4.7%, 4.1%, correspondingly, according to a comprehensive worldwide survey (3). Most researches have shown that females had a higher prevalence of IBS as well as chronic constipation, compared to functional dyspepsia. During 2016, around 36 million people in India turned out to exist, suffering from noncommunicable liver and gastrointestinal (GI) illnesses (4) not just gastrointestinal, but also the burden of mental diseases has increased in the recent years. Researchers have found a significant incidence of stress, depression, anxiety, and disturbed neurological system functioning within persons suffering from alimentary tract illnesses further proving that meditation centred on mindfulness can reduce nervousness thereby improving quality of life indicators related with the diseases of gastroesophageal reflux. (5)

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The gut-brain axis fosters bidirectional communication between the central and enteric neural systems. It is speculated that the majority of gastrointestinal issues develop by disturbances in this pathway. The fundamental goal of existing treatment options for gastrointestinal illnesses is to resolve the primary problem, reduce the inflammatory response, and avoid long-term consequences. The most modern approach of endoscopic therapy for gastrointestinal problems carries a 12.8% complication risk (6). With this background, yoga modules and meditation can function as cost-effective complementary treatments. Meditation and yoga-based strategies have beneficial impact regarding neurophysiological circuits, hence enhancing quality of life and lowering the prevalence of illness among those afflicted with lifestyle-related ailments, thus offering a substitute intervention for different psychosomatic diseases. Studies demonstrate that certain regulated rhythmic breathing practices like Sudarshan Kriya encourage a healthier lifestyle by increasing antioxidative state, immunity, hormone condition and neurological activity.(7) Many gastrointestinal ailments, like irritable bowel disorder (IBS), can benefit from meditation.(8) Though previous research studies have emphasised the relevance of holistic strategies in alleviating or treating GI diseases, there exists a severe vacuum in the literature to examine the efficacy of mind-body therapies such as Mantra therapy on Gastrointestinal quality of life.

The *Shatchakra* or “centers of consciousness” according to yogic concepts are channelizing the human potential energy. Chakras are whirlpools associated with supernatural power, visualised and perceived as circular motions of energy at certain rates of vibration. *Manipur Chakra* (Solar Plexus) situated at naval region governs the digestive health and affects the functions of the abdominal organs. It is assumed that intoning the *Beeja* mantra of *Manipur Chakra* may activate its vitality and dormant potential. The word “*Ram*” is the *Beeja mantra* of *Manipur Chakra* (9). According to *Sakandiyamal Tantra*, *Nirvan Khand*, the word *RAM* is made up of “*Ra+aa+ma*,” where “*Ra*” represents *Rudra Roop Agni*, who manages digestion and eventual destruction, “*aa*” represents *Brahmaroop Surya* (Sun), the creator of universal activities, and “*ma*” represents *Vishnu Roop Chandra* (Moon), who manages heat or excess energy produced, therefore chanting the word *RAM* balances the *Manipur Chakra* and aids in the maintenance of a healthy mind and body. The mantra *Om Ram Ramaya Namah* consists of the word *RAM* as also in *Rama Raksha Stotra* the word appears more than 70 times. Some parallels between the *Rama Raksha Stotra* and the *Manipur Chakra* aid in understanding how it works on *Manipur Chakra*. The place of fire is *Manipur Chakra* (Solar Plexus), which is ruled by Sun, whereas *Ram* is the monarch of the *Surya* dynasty. The colour of the Chakra is yellow, and *Ram* is always depicted in yellow clothes, as stated in “*Pitam Vaso Vasanam*”. The Chakra represents energy, intellect, youth, and a new beginning, as does *Lord Rama*. The deity of *Manipur Chakra* is *Vishnu*, and *Ram* is an incarnation of *Vishnu* (10). In a comparable manner the prayer *Nirvana*

Shatakam written by Adi Shankaracharya is believed to improve positive vibes and eliminate negative emotions, creating a sense of consciousness. Chanting it acts as mental reminder of one’s true formless nature and helps dissociate from false physical identity.

Considering the increasing prevalence of gastrointestinal diseases and the limitation of medicinal treatment, here we aim to conduct a study on non-pharmacological, cost-effective, self-controlled, easy to follow option for maintaining the gut health. *Ram beeja* mantra and *Ram Raksha Stotra* were used to assess its effect on the *Manipur chakra* for the study group and *Nirvana Shatakam* for control group using Gastrointestinal Quality of Life Index scale. It is very necessary to explore this yogic knowledge for our physical, mental and spiritual wellbeing.

Methodology

Study design

Open labeled randomised controlled clinical trial for 30 days. The data was collected on day 0, 15th, and 30th using GIQLI Scale. The study was started after taking the approval from institutional ethics committee Ref. No: DYPCARC/IEC/709/2023. CTRI registration was done (CTRI/2023/10/058363).

Inclusion and exclusion criteria

Adult population suffering from mild GI disorders like occasional acidity, burping or constipation etc. between 20 to 60 years of age; who were willing to adopt mantra therapy with Hymn as a Life style intervention with a commitment for 30 days as a regular participant were enrolled in the study. Participants who were willing to participate but regular practitioners of some hymn, and also those with known severe and chronic digestive diseases were excluded at screening.

Randomisation and allocation

The 50 enrolled participants were randomly allocated into 2 groups -study group (mantra therapy) and control group (prayer group). Randomisation was done using lottery method. The participants were informed about the clinical trial and the informed consent was taken before enrolling them in the study. Though 25 participants were enrolled in each group, only 21 participants from study group and 21 participants from control group completed the study.

Intervention

For the study group, *Ram Beeja Mantra* from *Shri Ram Uttar Tapaniya Upanishad* and *Ram Raksha Stotra* were employed to evaluate the effect of mantra therapy on gut health using gastrointestinal quality of life index. Participants were requested to chant the *Ram Beeja mantra (Om Ram Ramaya Namah)* (108 times) in the morning and the *Ram Raksha Stotra* once in the evening hours. Whereas, the control group participants were asked to recite *Nirvana Shatakam* once in the morning. The intervention was administered over a 30-day period for both groups.

Prior to the study, participants were given a 3 days practice session to assess the pronunciation of *Anu Nasik* words and the rhythm of recitation as resonance, vibration, and sound are all necessary in mantra meditation for obtaining the desired outcomes.

Measure

The Gastrointestinal Quality of Life Index (GIQLI) (11) is a proven and useful method for assessing quality of life in relation to gut health. It's a 36-question scale divided into five domains: core symptoms (10 items), physical (6 items), psychological (6 items), social (2 items), and disease-specific (8 items). Core symptoms are comprised of inquiries about unpleasant symptoms of gastrointestinal illnesses such as discomfort and bloating in the abdomen. The physical domain involves assessing an individual's physical strength and ability to perform despite discomfort and illness. Psychological domain questions assess an individual's mental well-being. The social domain focuses on comprehending an individual's social life, whereas the disease specific domain focuses on disease specific symptoms.

Data analysis

The observed data was analysed by SPSS statistical software. The normality for various domains and total scores at three distinct time frames (Day 0, Day 15, and Day 30) was tested using the Shapiro-Wilk test and the Kolmogorov-Smirnov test. The result indicated that the scores of all domains and total scores do not adhere to the assumption of normal distribution, which should be considered when applying parametric statistical tests. Hence, further statistical analysis was done using non-parametric tests of significance like Friedman ANOVA and Mann Whitney U test.

Result

Demographic Detail

In the study, two groups were analysed with 21 participants in control group and 18 participants in study group. The mean age in the Control group was 33.68 years (SD= 10.09). In the Study group a slightly higher mean age of 36.39 years (SD= 9.46). In the control group, there were 5 males (23.8%) and 16 females (76.2%), while the study group consisted of 2 males (11.1%) and 16 females (88.9%). When considering the entire sample of 39 study subjects, there were a total of 7 males (17.9%) and 32 females (82.1%). Gender-wise distribution indicates that the majority of study subjects were female, with females comprising a significant proportion of both the control and study groups.

Control Group

In Domain 1, there were statistically significant differences in scores across the three distinct time stages (day 0, day 15, and day 30), with a p-value less than 0.001. The effect size was moderate (0.503). Similarly, in Domain 2 and Domain 3, significant differences were observed in scores over time (p-values < 0.001), with

relatively large effect sizes (0.751 and 0.818, respectively). Domain 4 showed significant differences as well, with a p-value of 0.009 and a smaller effect size (0.226). In Domain 5 no statistically significant differences in scores across the three time points were observed (p = 0.115). The effect size for Domain 5 was small (0.103). In the total score, there were significant differences in scores across the three time points (p-value < 0.001), with a substantial effect size of 0.889. Table 1 presents a within-group domain-wise comparison of scores in the control group on days 0, 15, and 30 using Friedman ANOVA.

Table 1: Within group domain wise comparison of scores in control group at day 0, day 15 and day 30 using Friedman ANOVA

Domain		Mean	SD	Mean Rank	p-value
Domain 1	Day 0	29.429	5.153	1.520	<0.001**
	Day 15	30.143	4.693	1.950	
	Day 30	30.810	4.729	2.520	
Domain 2	Day 0	21.952	3.442	1.400	<0.001**
	Day 15	22.667	3.136	1.790	
	Day 30	23.952	2.889	2.810	
Domain 3	Day 0	18.429	3.140	1.240	<0.001**
	Day 15	19.286	2.723	1.900	
	Day 30	20.381	2.747	2.860	
Domain 4	Day 0	8.476	1.601	1.860	0.009**
	Day 15	8.571	1.568	1.900	
	Day 30	8.952	1.746	2.240	
Domain 5	Day 0	36.333	2.331	1.830	0.115, NS
	Day 15	36.571	2.399	2.050	
	Day 30	36.476	2.159	2.120	
Total score	Day 0	114.619	11.539	1.170	<0.001
	Day 15	117.238	10.392	1.900	
	Day 30	120.571	10.107	2.930	

Study Group

Table 2 presents a within-group domain-wise comparison of scores in the study group at three distinct time stages: day 0, day 15, and day 30, using Friedman ANOVA. For Domain 1, there were highly significant differences in scores across three-time stages (day 0, day 15, and day 30) with a p-value less than 0.001. The effect size was very large (1.000). Similarly, in Domain 2, Domain 3, Domain 4, and Domain 5, significant differences in scores over time were observed, with p-values less than 0.001. These domains showed substantial effect sizes, indicating meaningful changes in scores over time (0.919, 0.891, 0.377, and 0.975, respectively). When considering the total score, there were highly significant differences in scores across the three time points (p-value < 0.001), with a very large effect size of 1.000.

Comparison of both groups

Table 3 shows between-group comparison of pre-post differences using the Mann Whitney U test. The findings indicate significant variations in the changes observed in different domains and the total score between the Control and Study groups. In Domain 1, the Study group showed a notably higher mean difference (9.167) compared to the Control group

Table 2: Within group domain wise comparison of scores in study group at day 0, day 15 and day 30 using Friedman ANOVA

Domain		Mean	SD	Mean Rank	p-value
Domain 1	Day 0	27.500	5.216	1.00	<0.001 **
	Day 15	32.444	3.185	2.00	
	Day 30	36.667	1.847	3.00	
Domain 2	Day 0	19.278	5.603	1.11	<0.001 **
	Day 15	23.000	2.890	1.94	
	Day 30	25.833	2.282	2.94	
Domain 3	Day 0	16.944	5.493	1.14	<0.001 **
	Day 15	19.389	3.712	1.94	
	Day 30	21.500	2.640	2.92	
Domain 4	Day 0	9.556	2.175	1.61	<0.001 **
	Day 15	10.111	1.491	2.03	
	Day 30	10.500	1.339	2.36	
Domain 5	Day 0	34.667	2.722	1.00	<0.001 **
	Day 15	37.222	1.896	2.06	
	Day 30	39.278	1.074	2.94	
Total score	Day 0	107.944	17.390	1.00	<0.001 **
	Day 15	122.167	10.337	2.00	
	Day 30	133.778	7.281	3.00	

(1.381), with a significant p-value (<0.001). Similar patterns were observed in Domain 2, Domain 3, and Domain 5, where the Study group exhibited significantly greater mean differences in scores than the Control group, indicating more substantial improvements. In contrast, Domain 4 did not show a significant difference between the two groups, as indicated by a non-significant p-value (0.349, NS). Overall, these findings suggest that the Study group experienced more significant improvements in various domains and the total score compared to the Control group over the course of the study.

Table 3: Comparison of pre-post differences using Mann Whitney U test between control and study group

Group		Mean	SD	SEM	Mann Whitney U	p-value
Domain 1	Control	1.381	2.578	0.563	14.000	<0.001 **
	Study	9.167	4.176	0.984		
Domain 2	Control	2.000	1.703	0.372	52.000	<0.001 **
	Study	6.556	4.643	1.094		
Domain 3	Control	1.952	1.161	0.253	118.500	0.046 *
	Study	4.556	3.714	0.875		
Domain 4	Control	0.476	0.981	0.214	155.000	0.349, NS
	Study	0.944	1.893	0.446		
Domain 5	Control	0.143	1.153	0.252	4.000	<0.001 **
	Study	4.611	2.146	0.506		
Total	Control	5.952	5.554	1.212	16.000	<0.001 **
	Study	25.833	13.374	3.152		

Discussion

Gut health has emerged as an increasingly important topic of research over the last decade. Scientific studies are being conducted to gain

insight into its impact on multiple systems of the body. Gut health is proven to affect nearly every element of life. The current study assesses the enhancement in gastrointestinal quality of life after mantra therapy.

Previously, research conducted on the microbiome of the human intestine, of participants following vegan meditation-based lifestyle revealed comprehensive improvement in the body's the immune system, metabolism, and endocrine system, promoting an enhanced health status (12). Mantras are unique phonetic words that set extra-etheral vibrations in action. Mantra recitation triggers static electrical centres, causing ionic discharges that influence nerve centres in the human brain. Hence, it is widely recognised that mantras have a significant impact on both the human and plant systems (13). According to reports, reciting the Gayatri mantra during Yagya decreases particulate matter and electromagnetic radiations while increasing antimicrobial action against human pathogens in the adjacent environment (14). Mantra meditation has been proven to exert a profound impact on immune cells as demonstrated in various circulating lymphocyte subsets and the neuroendocrine axis. Silent mantra practicing has been linked to improved immunity, less stress and anxiety, and increased connection between the right insula and posterior cingulate cortex (PCCC) (15). Mantra can help alleviate psychological, cardiovascular, and digestive issues, while a vegan diet can help avoid metabolic disorders like diabetes, obesity, and cholesterol. To the best of our knowledge, this is the first study that highlights a link between Mantra therapy and GI quality of life.

Effect of therapy on core symptoms

Agni (digestive fire) is a fundamental component of life that has served as evidence of our evolution and a source of numerous inventions throughout history. (16) According to the *Vedas*, India's oldest literature, and *Ayurveda*, *Agni* (digestive fire) is revered in its divine form as the giver and sustainer of life (17). Morbid *Doshas* induce diseases by assaulting and disrupting the regular function of the body's tissues, which are the foundations of defence, immunity, and health maintenance. The morbidity of these *Doshas*, manifested as a pathological rise or decrease, is always determined by *Agni's* (digestive fire) state. If the *Agni* (digestive fire) is working properly, the *Doshas* stay undisturbed and support our body, mind, and life. On the contrary, if the *Agni* is disturbed, the *Doshas* are also affected, causing a variety of ailments such as ulcers, diarrhea, and constipation etc. by targeting the body's defences (16). A comparative more improvement in core symptoms such as bloating, bleaching, abdominal discomfort, weariness, and others in the study than the control group can be justified on the same basis. *Beeja* mantra recitation in the study group awakens the digestive fire.

Effect of therapy on physical aspect

The study group improved more in physical parameters such as strength, attractiveness, and

endurance than the control group. The study group's physical improvements can be attributed to yogic understanding of *Shatchakras* and Ayurveda. According to ayurveda *Samhitas*, the appropriate functioning of *Agni* produces various physiological benefits such as strong strength, resistance to infection, and good skin luster (18-19). Activating the *Manipur Chakra* (Solar Plexus) enhances the digestive fire, which promotes digestion and the availability of nutrients to all bodily tissues, resulting in increased energy, appearance, and endurance (20). Another possible explanation is an improvement in gut microbiota after undergoing the mantra therapy. A study in the past have indicated that probiotics supplementation leading to an improvement in the gut microbiota boosts endurance in adults (21).

Effect of therapy on psychological aspect

The mind is a self-rotating magnetic wave. Regular mantra meditation practice can help us calm our breathing, slow our brain waves, and reduce muscle tension and pulse rate (22). Our study demonstrates substantial enhancement in psychological traits of participants by lowering mood fluctuations, sadness, stress, annoyance, and anxiety. The bidirectional interaction between the gut and brain can explain the psychological improvement. Healthy gastrointestinal function has been connected with optimal central nervous system function.(23-26) Hormones, neurotransmitters, and immunological components secreted from the GI tract have been shown to deliver messages to the brain directly or through autonomic neurons.(27) Dysbiosis and intestinal inflammation have been related to the cause of various mental illnesses, including anxiety and depression, which are increasingly becoming more prevalent.(27) Our mantra therapy, which focuses on the *Manipur Chakra* (Solar Plexus), helps to activate the Chakra, improve gastrointestinal health, and enhances the psychological element. In reverse, mantra treatment acts on the mind, slowing down brain waves consequently improving gastrointestinal and mental health. In comparison to the control group, the study group showed more improvement because the mantra therapy offered in the study group worked on the bi-directional gut brain axis, whereas the prayer chanting done in the control group worked on the mental aspect only but did not address the physical issues that eventually resulted in psychological disturbances.

Effect of therapy on social aspect

Gut microbiota influence on the brain and behaviour has sparked global interest, despite being a relatively young scientific field. This expanding body of research implies that many socially adapted psychological characteristics, such as temperament, have a bidirectional relationship with microbial composition. (28) Research has also indicated that people with large social circles have more microbial variety, while individuals who experience elevated stress levels and anxiety have less diversity (which is often associated with poorer sociability. (29)A study done by Vaidya Prasad et.al to analyse Autism Spectrum

Disorder therapy approaches, observes that children with Autism Spectrum Disorder exhibit behavioural patterns that are directly influenced by the state of the *Agni* (digestive fire), as determined by how well the gastrointestinal system functions. A comprehensive study reveals that *Agni* (digestive fire) in Autism Spectrum Disorder children is either under-performing or mal-performing, resulting in an accumulation of undesirable, harmful compounds in the *dhatu*s. (30) Studies have now shown that GM, either directly or indirectly through multiple pathways such as neuronal, immunological, or endocrine, can change brain neurochemistry at the molecular and behavioural levels. Human GM has the capacity to modulate HPA axis function; neurotransmitters (such as adrenaline, 5-HT,) thereby affecting a person's mood and interest in daily activities. (20) The studies mentioned above serve to confirm our findings that improved social behaviour following mantra meditation, which leads to an improvement in digestive fire. Both the research group and the control group demonstrate nearly identical improvements in terms of social aspects. Prayer chanting is frequently followed by the expression of positive vibes or blessings for oneself and others. This act of focusing on the well-being of others, develops empathy and compassion inside individuals, resulting in better social relationships with those around them. This explains why the control group improved.

Effect of therapy on disease specific aspect

In terms of disease-specific symptoms, the study group performed better than the control group. This could be explained using the ayurvedic concept of *Agni* (digestive fire). Ayurveda believes that a disturbed *Agni* is the root cause of all psychosomatic ailments. A variety of diseases and symptoms, including regurgitation, nausea, diarrhoea, and constipation, are the result of disturbed *Agni* (digestive fire), in the form of either a pathological rise or an abnormal decrease. (16) Mantra meditation with *Beeja* mantras, focusing on the *Manipur chakra* (Solar Plexus), helps to balance the *Agni* (digestive fire), resulting in an improvement in disease-specific gastrointestinal symptoms.(9) On the contrary, no improvement in disease-specific symptoms was noticed in the control group since the prayer included there was devoid of the *Beeja* phrases. Consequently, there was no impact on the *Manipur chakra* (Solar Plexus) leading to no improvement in the digestive fire as well.

Conclusion

The *Manipur Chakra* (Solar Plexus) is the nexus of body and mind. According to the study's findings, *Manipur Chakra* (Solar Plexus) awakening using mantra therapy has a significant impact not only on physical components but also on subconscious communication between body cells. Reciting the *Ram Beeja* mantra and *Rama Raksha Stotra* awakens the *Manipur Chakra* (Solar Plexus) if it is depleted of energy and balances it if it is overloaded. With rising budgetary barriers in the society, particularly within the

healthcare system, this therapy can be employed as a non-invasive, cost-effective, easily implementable, complementary approach to a variety of gastrointestinal problems. It has the potential to be one treatment for a variety of problems, including lifestyle and psychological disorders, which are becoming more common in today's culture.

Limitations and further scope

It is important to note that further research is needed for better understanding the limitations and potential benefits of mantra therapy. The research project was a pilot study with a small population. To corroborate the findings, a larger population-based study is required. Additionally, the individual variations in response to this therapy must also be considered. The subjects were healthy adults with no underlying chronic gastrointestinal issues. As a result, it is necessary to perform a study on patients suffering from chronic gastrointestinal diseases to evaluate the effect in such instances. Furthermore, the effect of mantra meditation on patients suffering from post-chemotherapy problems can be investigated. In such individuals, the impact of improved gut flora on their quality of life must be evaluated. A thorough investigation into the mechanism of action of mantra meditation can also be carried out. Genetic investigation of GI microbiota can aid in understanding the mechanism of action.

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Conflicts of Interest:

The authors declare no conflict of interest.

AI Declaration:

During the preparation of this, work we have used the AI writing tools in order to enhance the language and readability. The content was reviewed and edited as per the need after using the AI tools.

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