

**EFFECT OF HEARTFULNESS SPIRITUAL PRACTICE BASED
PROGRAMS AND PROCESSES ON MENTAL AND
PHYSIOLOGICAL HEALTH INDICATORS**

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by

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**NATIONAL RESOURCE CENTRE FOR VALUE EDUCATION IN
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Dedicated to my parents

Late Shri Dharmendra Kumar

&

Late Smt Brahmavati

CERTIFICATE

This is to certify that the thesis titled “**Effect of Heartfulness Spiritual Practice Based Programs and Processes on Mental and Physiological Health Indicators**” being submitted by **Mr. Narendra Kumar Arya** to the Indian Institute of Technology Delhi in the fulfilment of the requirements for the award of the degree of **Doctor of Philosophy** is a record of bona fide research work carried out by him under our supervision at National Resource Centre for Value Education in Engineering, Indian Institute of Technology Delhi.

The results documented herein have not been submitted in part or full to any other University or Institute for the award of any degree or diploma to the best of our knowledge.

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Abstract

While there are many organizations running popular spirituality based programs, comprehensive studies on these programs and practices of organizations running full day programs are rare. There is scarcity of studies on effect of Heartfulness/*Sahaj Marg* meditation related processes like cleaning and meditation using Heart Rate Variability (HRV). To fill these gaps three studies were planned. While Study I and Study II explored the effect of Heartfulness/*Sahaj Marg* spiritual programs on different mental and physiological parameters at CREST Bengaluru and Himalayan Ashram respectively, Study III, carried out at Max super Speciality hospital saket New Delhi, looked at the effect of heartfulness cleaning and meditation on HRV. All the three studies consisted of participants who were already practitioners of Heartfulness/*Sahaj Marg* practice.

The sample size in Study I consisted of 31 participants with a mean age of 49.7 years (SD=15.2), while Study II was carried out with a total of 55 participants (mean age=49 years, SD=12.5). Both the studies were of five days duration and were conducted at two different locations, wherein the participants were required to follow set routines, specific to the programs comprising of different activities like morning meditation, evening cleaning, night prayer, lectures, group discussions, voluntary work etc. Psychological scales used in studies I and II were Mental Health Continuum Short Form (MHC-SF), Scale of Positive and Negative Experience (SPANE), Flourishing Scale (FS), Sat-Chit-Ananda Scale, Mindful Attention Awareness Scale (MAAS), and Depression, Anxiety and Stress Scale-21 item version. (DASS 21).

Study III was conducted with a total of 30 participants (mean age=45.1 years, SD=12.7) at the non-invasive cardiology laboratory of Max Super Speciality Hospital Saket, New Delhi.

HRV was measured using the Holter monitor. Psychological scales used in this study were Cantril's Ladder for happiness, SPANE and FS.

The results of Study I obtained that all factors of MHC-SF (Emotional, Social and Psychological well-being) and its total score, Positive and Negative experiences and Balance score of SPANE, Flourishing, Sat-Chit-Ananda and Depression–DASS were significantly different in post testing. However other selected factors were not found significantly different. Content analysis of the interview schedule revealed that for majority of the participants, the reason for joining this program was to learn more about this spiritual program and to improve their own spiritual practice. Most of the participants further revealed that participating in Heartfulness/ *Sahaj Marg* program has given a boost to their spiritual condition.

Analysis of self-report measures in Study II indicated significantly different scores for mental health and its Emotional and Social well-being components, Positive and Negative experiences and Balance score of SPANE and Sat-Chit-Ananda, post spiritual program. Depression, Anxiety and Stress components of DASS were also found to be significantly different, post testing. However, no significant change was seen for psychological component of MHC-SF, flourishing and mindfulness. While, for majority of the participants, working on their spiritual progress was the main aim of attending this program, some confessed they had come to experience the ambience and the silence of the unique location of the program. Most of the participants reported tremendous spiritual improvement in their condition, post program. Results of well-being and ill-being related parameters, physiological parameters and semi-structured interview indicate perceived change towards general improvement.

In the Study – III, Heartfulness processes of cleaning and meditation were found to have a positive effect on sympathovagal balance as demonstrated by significant decrease in

normalized unit of power in low-frequency band (LFnu), ratio of power in low frequency band to power in high frequency band (LF/HF) and significant increase in normalized unit of power in high-frequency band (HFnu) values. Blood pressure (BP) Systolic and maximum heart rate (HR_{max}) were also found to decrease significantly, indicating an overall positive effect of meditation and cleaning. The results of self report measures showed that participants had sound levels of happiness on Cantril's ladder, scales of flourishing and experiences. Positive response of participants about how enjoyable it was and how peaceful and happy they felt, supported the results found by HRV analysis.

The present study contributes to the knowledge base of effect of meditation based programs and processes in more ways than one. Firstly, what sets this study apart is the fact that it is a combination of three different studies carried out in three different locations with different sample sizes for all the three studies. Secondly, while the first two studies gave an insight on effect of meditation based programs comprising of different practices and activities, the third study on the other hand clearly assessed the effect of Heartfulness cleaning and meditation on Heart Rate Variability (HRV), which is a very reliable parameter for indicating the sympathovagal balance. It is being demonstrated for the first time that Heartfulness/*Sahaj Marg* cleaning also results in increase of parasympathetic tone and decrease of sympathetic tone, similar to what happens with meditation.

सार

हालांकि आध्यात्मिकता पर आधारित लोकप्रिय कार्यक्रम चलाने वाले कई संगठन हैं, इन कार्यक्रमों और पूर्ण दिवसीय कार्यक्रम चलाने वाले संगठनों के अभ्यासों पर व्यापक अध्ययन दुर्लभ हैं। हार्ट रेट वैरिएबिलिटी (HRV) का उपयोग करके मन की निर्मलता (Heartfulness cleaning) और ध्यान (Heartfulness meditation) जैसी हार्टफुलनेस/सहज मार्ग ध्यान से संबंधित प्रक्रियाओं के प्रभाव पर अध्ययन की कमी है। इस अंतराल को भरने के लिए तीन अध्ययनों की योजना बनाई गई थी। जबकि अध्ययन प्रथम और अध्ययन द्वितीय ने क्रेस्ट बेंगलुरु और हिमालयी आश्रम में क्रमशः विभिन्न मानसिक और शारीरिक मानकों पर हार्टफुलनेस/सहज मार्ग आध्यात्मिक कार्यक्रमों के प्रभाव का अध्ययन किया, मैक्स सुपर स्पेशलिटी अस्पताल साकेत नई दिल्ली में किए गए तृतीय अध्ययन ने HRV पर हार्टफुलनेस मन की निर्मलता और ध्यान के प्रभाव का अध्ययन किया। सभी तीन अध्ययनों में वह प्रतिभागी शामिल थे जो पहले से ही हार्टफुलनेस/सहज मार्ग का अभ्यास करते थे।

अध्ययन प्रथम में 49.7 वर्ष (एसडी = 15.2) की औसत आयु के 31 प्रतिभागी शामिल थे, जबकि अध्ययन द्वितीय कुल 55 प्रतिभागियों (औसत आयु = 49 वर्ष, एसडी = 12.5) के साथ किया गया था। दोनों अध्ययन पाँच दिनों की अवधि के थे और दो अलग-अलग स्थानों पर आयोजित किए गए थे, जिसमें प्रतिभागियों को निर्धारित दिनचर्या का पालन करना आवश्यक था, जिसमें विभिन्न गतिविधियाँ जैसे सुबह ध्यान, शाम की मन की निर्मलता, रात की प्रार्थना, व्याख्यान, समूह चर्चा, स्वैच्छिक कार्य आदि शामिल थे। अध्ययन प्रथम और द्वितीय में उपयोग किए गए मनोवैज्ञानिक मापदंड, मेन्टल हेल्थ कंटिन्युअम शार्ट फार्म (MHC-SF),

स्केल ऑफ पाजिटिव एण्ड निगेटिव एक्सपीरिएंस (SPANE) प्लोरिशिंग स्केल (FS), सत-चित-आनंद स्केल, माइंडफुल अटेंशन अवेयरनेस स्केल (MAAS), और डिप्रेशन एंक्साइटी स्ट्रेस स्केल-21 आइटम वर्जन (DASS 21) थे।

अध्ययन तृतीय का आयोजन मैक्स सुपर स्पेशलिटी अस्पताल साकेत, नई दिल्ली की नॉन इन्वेसिव कार्डियोलॉजी प्रयोगशाला में कुल 30 प्रतिभागियों (औसत आयु = 45.1 वर्ष, एसडी = 12.7) के साथ किया गया था। HRV को होल्टर मॉनीटर का उपयोग करके मापा गया था। इस अध्ययन में इस्तेमाल किए गए मनोवैज्ञानिक मापदंड, कैंटिल लैडर ऑफ हैप्पीनेस, SPANE और FS थे।

अध्ययन प्रथम से यह परिणाम निकले कि MHC-SF के सभी कारक (भावनात्मक, सामाजिक और मनोवैज्ञानिक) और इसके कुल अंक, सकारात्मक अनुभव, नकारात्मक अनुभव और संतुलित स्कोर SPANE, प्लोरिशिंग, सत-चित-आनंद और डीप्रेशन-DASS परीक्षण के अंत में उल्लेखनीय रूप से अलग थे। हालांकि अन्य चयनित कारक उल्लेखनीय रूप से अलग नहीं पाए गए। साक्षात्कार के विश्लेषण से पता चला कि अधिकांश प्रतिभागियों के लिए इस कार्यक्रम में शामिल होने का कारण इस आध्ययात्मिक कार्यक्रम के बारे में जानना और अपने आध्यात्मिक अभ्यास में सुधार करना था। अधिकांश प्रतिभागियों ने आगे बताया कि हार्टफुलनेस/सहज मार्ग कार्यक्रम में भाग लेने से उनकी आध्यात्मिक स्थिति में सुधार हुआ है।

द्वितीय अध्ययन में आत्म-रिपोर्ट उपायों के विश्लेषण में MHC-SF और उसके भावनात्मक और सामाजिक कल्याण घटकों, सकारात्मक अनुभव, नकारात्मक अनुभव और संतुलित स्कोर SPANE, सत-चित-आनंद के स्कोर आध्यात्मिक कार्यक्रम के बाद उल्लेखनीय रूप से अलग पाये गये। DASS 21 के अवसाद, चिंता और तनाव घटकों को भी परीक्षण के बाद उल्लेखनीय रूप से अलग पाया गया। हालांकि, MHC-SF के मनोवैज्ञानिक घटक, FS एवम MAAS में कोई महत्वपूर्ण बदलाव नहीं देखा गया। अधिकांश प्रतिभागियों के लिए, अपनी आध्यात्मिक प्रगति पर काम करना इस कार्यक्रम में भाग लेने का मुख्य उद्देश्य था, हालांकि कुछ ने स्वीकार किया कि वे इस कार्यक्रम में इस अद्वितीय स्थान के माहौल और शांति का अनुभव करने आए हैं। अधिकांश प्रतिभागियों ने अपनी स्थिति में कार्यक्रम के बाद जबरदस्त आध्यात्मिक सुधार की सूचना दी। कल्याण और बीमार होने वाले मापदंडों के परिणाम, शारीरिक मापदंडों के परिणाम और अर्ध-संरचित साक्षात्कार सामान्य सुधार की दिशा में संकेत करते हैं।

अध्ययन तृतीय में हार्टफुलनेस की मन की निर्मलता और ध्यान प्रक्रियाओं का sympathovagal संतुलन पर सकारात्मक प्रभाव पड़ा, जैसा कि कम आवृत्ति बैंड में पावर की सामान्यीकृत इकाई (LFnu) में महत्वपूर्ण कमी LF/HF में कमी और उच्च आवृत्ति बैंड में पावर की सामान्यीकृत इकाई (HFnu) में महत्वपूर्ण वृद्धि से दर्शाया गया है। रक्तचाप (BP) सिस्टोलिक और अधिकतम हृदय गति HRmax में भी उल्लेखनीय रूप से कमी पायी गयी, जो ध्यान और मन की निर्मलता के समग्र सकारात्मक प्रभाव को दर्शाता है। स्वयं रिपोर्ट उपायों के नतीजे बताते हैं कि प्रतिभागी कैंट्रिल लैडर ऑफ हैप्पीनेस, SPANE और FS के पैमानों पर

अच्छे थे। प्रतिभागियों की सुखदता और उनके शांतिपूर्ण और खुश महसूस करने के बारे में सकारात्मक प्रतिक्रिया HRV विश्लेषण द्वारा प्राप्त परिणामों का समर्थन करती हैं।

वर्तमान अध्ययन, ध्यान आधारित कार्यक्रमों और प्रक्रियाओं के प्रभाव के ज्ञान में योगदान देता है। सबसे पहले, इस अध्ययन के महत्वपूर्ण होने का कारण यह है कि यह तीनों अलग-अलग स्थानों में किए गए तीन अलग-अलग अध्ययनों का संयोजन है, जिसमें तीनों अध्ययनों के लिए विभिन्न नमूना आकार हैं। पहले दो अध्ययनों ने विभिन्न अभ्यासों और गतिविधियों सहित ध्यान आधारित कार्यक्रमों के प्रभाव पर अंतर्दृष्टि दी तो दूसरी तरफ तीसरे अध्ययन ने HRV पर हार्टफुलनेस की मन की निर्मलता और ध्यान के प्रभाव का स्पष्ट मूल्यांकन किया, जो कि *sympathovagal* संतुलन को इंगित करने के लिए बहुत विश्वसनीय मापदंड है। यह पहली बार प्रदर्शित किया जा रहा है कि हार्टफुलनेस/सहज मार्ग की मन की निर्मलता की प्रक्रिया के परिणामस्वरूप भी पैरासिम्पेथेटिक टोन में वृद्धि और सिम्पेथेटिक टोन में कमी होती है जैसा कि ध्यान के संबंध में होता है।

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Chapter 1: Introduction

1.1 Happiness, well-being and mental health

In today's fast paced world, people have varied needs that go beyond basic needs, stemming from a whole new set of stressors and insecurities of the globalized world. These include spiritual needs, and need for personal growth and satisfaction. People are turning their attention towards the spiritual sector and the shift from worldly desires towards one's own inner self is becoming more visible. There is more openness about embracing these needs and people are willing to walk an extra mile to achieve personal happiness and a sense of overall well-being. According to Diener, Sapyta & Suh (1998) happiness is one of the most salient human pursuits. In psychological literature, the terms happiness, quality of life, life satisfaction, and prosperity are often used interchangeably with well-being (Eger & Maridal, 2015). Dunn, Beard and Fisher (2011) in their paper on happiness defined four constructs that serve as proxy measures to happiness namely subjective well-being (SWB), quality of life (QoL), life satisfaction and flourishing. The words 'happiness', 'quality of life' and 'well-being' have similar meanings, indicating that the life is good, however, they do not clarify about the good factors in life (Veenhoven, & Hagerty, 2006). The overlapping nature of happiness and well-being as constructs is also evident from the various definitions wherein one is described in terms of the other. For example, well-being is often described "as happiness" (Pollard & Lee, 2003), and "as life satisfaction" (Diener & Suh, 1998; Seligman, 2002). Well-being implies that an individual feels satisfied and is happy to contribute meaningfully to one's community. While there exist many notions and markers of what makes an individual happy, theoretically it narrows down to two broad perspectives- hedonic (deals with the feelings of happiness, equated with SWB) and eudemonic (refers to optimal functioning in individual and social life, equated with

psychological well-being: PWB). The hedonic philosophy (often equated with SWB or happiness) includes the predominance of positive emotions over negative emotions and cognitive judgment about one's life satisfaction (Kahneman, Diener, & Schwarz, 1999; Linley, Maltby, Wood, Osborne, & Hurling, 2009). SWB is considered to be satisfaction in life and presence of positive mood, combined together with absence of negative mood which can also be summarized as happiness, taking all three factors together (Diener & Lucas, 1999). The eudemonic philosophers (Waterman, 1993; Ryan & Deci, 2001), on the other hand, believe that the eudemonic concepts of well-being considers that people are living as per their true self and eudemonia relates to people having activities of life in accordance to values and they are working in a holistic and pious nature.

Several models of well-being have tried to dissect the components of well-being. For example, a multi-dimensional model of PWB proposed six dimensions of well-being: autonomy, self-acceptance, a sense of continued growth and development, belief that life is purposeful and meaningful, positive relations with others and environmental mastery (Ryff & Keyes, 1995). Keyes (1998) proposed five key elements of social well-being, namely- social integration, social contribution, social coherence, social actualization, and social acceptance. Ryan and Deci (2000) looked at well-being through their Self Determination Theory (SDT) which posits that fulfillment of three basic psychological needs of autonomy, competence and relatedness, leads to eudemonic fulfillment. Seligman (2011) proposed PERMA model of well-being, constituting five measurable elements: positive emotion, engagement, relationships, meaning and purpose, and accomplishment.

So far it is clear that happiness and well-being are constructs with varied notions. Adding to this is another element - culture. Happiness and well-being have a strong cultural connotation

too. In the western school of thought, well-being has been related to mainly psychological and social aspects of human nature as given in well-being models of hedonic and eudemonia (Ryan & Deci, 2001). On the other hand, well-being in the Indian context is about consciousness and self, involving bio-psycho-social as well as spiritual realms (Kumar, 2006). In a review article, Joshanloo (2014) reviewed well-being through the lens of five eastern angles namely- Hinduism, Buddhism, Taoism, Confucianism, and Sufism. The author further outlined six major differences in the eastern and western concepts of happiness. The study highlighted how eudemonia is preferred in eastern cultures while the reverse is true for western cultures. While western culture lays emphasis on happiness and satisfaction, mystical experiences and transcending everyday life takes precedence in eastern cultures.

1.2 Indian concepts of well-being

The Indian notion of well-being encompasses the bio-physical, socio-psychological as well as spiritual realms (Singh, Mitra & Khanna, 2016). The Indian system considers that every organism comprises of three things, which are mind, body and spirit. One can reach the pinnacle of peace and joy or bliss by following the paths shown by various gurus and indigenous spiritual approaches (Bhawuk, 2010). Sri Aurobindo, one of the greatest philosophers of the world considered the harmony of body, mind, and, spirit as a main source of happiness (Pande & Naidu 1992). The Indian notion of well-being aligns with three perspectives-hedonic, transcendental and collectivist. According to Kumar (2003), the Indian hedonic perspective calls for enjoying one's life by maximizing one's pleasure and in a way it aligns with the materialistic viewpoint. The transcendental perspective, on the other hand, rejects the materialistic notion and believes that happiness and well-being are subjective and hence do not depend on objective conditions of reality, including one's state of body-mind. The collectivist perspectives lies somewhere between

these two perspectives and it takes into account the differences in the needs and desires of different people.

However, in some Indian scriptures like the *Upanishads*, well-being has a much wider meaning. It includes the transcendental aspects, talking about *ananda* i.e. bliss as the original condition of human beings and characterizes *atman*, the ‘pure consciousness’ or transcendental self (Kumar, 2006). As per the scriptures, one can transcend the disturbing aspects in one’s mind and approach bliss by different yogic processes. The existence of an individual is multi-layered which can be divided mainly into five layers, namely, *Annamaya Kosh* or physical layer, *Pranmaya Kosh* or energy layer, *Manomaya Kosh* or mental layer, *Vigyanmaya Kosh* or wisdom layer and the *Anandamaya Kosh* or layer of bliss. As we move towards a spiritual path, our mental state becomes more and more positive and we experience bliss - a source of happiness coming from inside (Kumar, 2003). As per *Taittiriya Upanishad*, the ultimate state of well-being that one can experience is when bliss is felt without any obstruction (Srivastava & Mishra, 2011). Bliss can be achieved by having the inner experience of connecting with infinite happiness called Sat-Chit-Ananda (*Sat* meaning being truthful, *Chit* referring to being aware, and *Ananda* being the bliss) (Srivastava and Misra, 2011). *Atma* (self) with its characteristic as *Sat* makes us conscious of ourselves, as *Chit* gives us the ability to perceive and as *Ananda* gives us the experience (Ramabrahman, 2004). A scale called Sat-Chit-Ananda, developed on the basis of Indian concepts has four dimensions namely, *Chit*-consciousness, *Antah Shakti*- Inner strength, *Sat*- truthfulness and *Ananda*- blissfulness (Singh, Khari, Amonkar, Arya, & Kesav, 2013; Singh, Khanna, Khosla, Rapelly & Soni, 2016).

The concept of *nishkama karma* (action without desire of its fruits) and the state of *sthitaprajna* (stable wisdom or balanced mind) described in the *Bhagwad Gita* are considered

vital to happiness and well-being. Giving up the fruits of one's endeavor (*nishkama karma*, or *karma yoga*) is recommended by Gita to avoid unhappiness resulting from one's pursuit of desires (e.g., verse 12.12) thereby, eventually leading to peace of mind and *sthitaprajna* (Bhawuk, 2011).

To conclude, the Indian school of thought considers happiness and well-being as spiritual pursuits that can be achieved only if an individual turns inward and discovers the real self.

1.3 Well-being and physical health

Physical health is one of the most important indices in the assessment of overall well-being. A good physical health is the key to a long, fulfilling life equipping the individual to function independently while lack of it may limit an individual to perform certain tasks and/or activities thus affecting his sense of overall well-being. A popular Indian saying that goes "*Pehla Sukh Nirogi Kaya*" i.e. good physical health is the first component of happiness. It signifies the importance of being physically healthy. For thousands of years, people in India have been praying for happiness and health:

"Sarve bhavantu sukhinah, Sarve santu niramayah

Sarve bhadrani pashyantu, Ma kashchit duhkh bhaag bhavet"

It means, "May all be happy, may all be free from sickness may all see things as being good, and may none has misery." (Modi, 2017). *Ayurveda*, the ancient Indian medical science, considers emotional and physical health as inseparable. The *Ayurvedic* physicians believe that the mind, including our thoughts, emotions and desires, is inextricably connected to our body. At the deepest level, they are an indistinguishable unit, shaped by our choices, experiences, reactions, and beliefs. Our well-being can be disturbed by painful psychological experiences the same way

as poor diet. There are various tools in *yoga* and *ayurveda* to improve our mind body connection. (“The mind + body connection,” 2018).

The close knit relationship between well-being and physical health has often been documented in literature. For example, Bishop, Epstein, Keitner, Miller, & Srinivasan (1986) reported that poor health was a significant factor associated with lower morale while Revicki & Mitchell (1990) reported that physical health problems were the most important source of life strain among older adults. Well-being was found to be positively related to both short-term physical health outcomes, long term physical health outcomes and disease or symptom control (Howell, Kern & Lyubomirsky, 2007). The authors further reported that the effect of emotional well-being on physical health is not merely because ill-being has a harmful impact on health, but also because well-being has a beneficial impact on physical health. While Yakovlev & Leguizamon (2012) documented physical health as a strong predictor for emotional well-being, other studies have reported well-being to be positively associated with better physical health (Diener & Chan, 2011; Howell, Kern & Lyubomirsky, 2007; Lyubomirsky, King & Diener, 2005).

1.4 Can happiness be increased?

Based on the findings of various studies, genetics contribute approximately 50% to happiness (Braungart, Plomin, DeFries, & Fulker, 1992; Lykken & Tellegen, 1996; Tellegen et al., 1988), circumstances contribute approximately 10% (Argyle, 1999; Diener et al., 1999) whereas 40% share goes to intentional activity (Lyubomirsky, Sheldon, & Schkade, 2005). This indicates that intentional activities can play a greater role in enhancing one’s happiness as compared to one’s circumstances (Fig. 1).

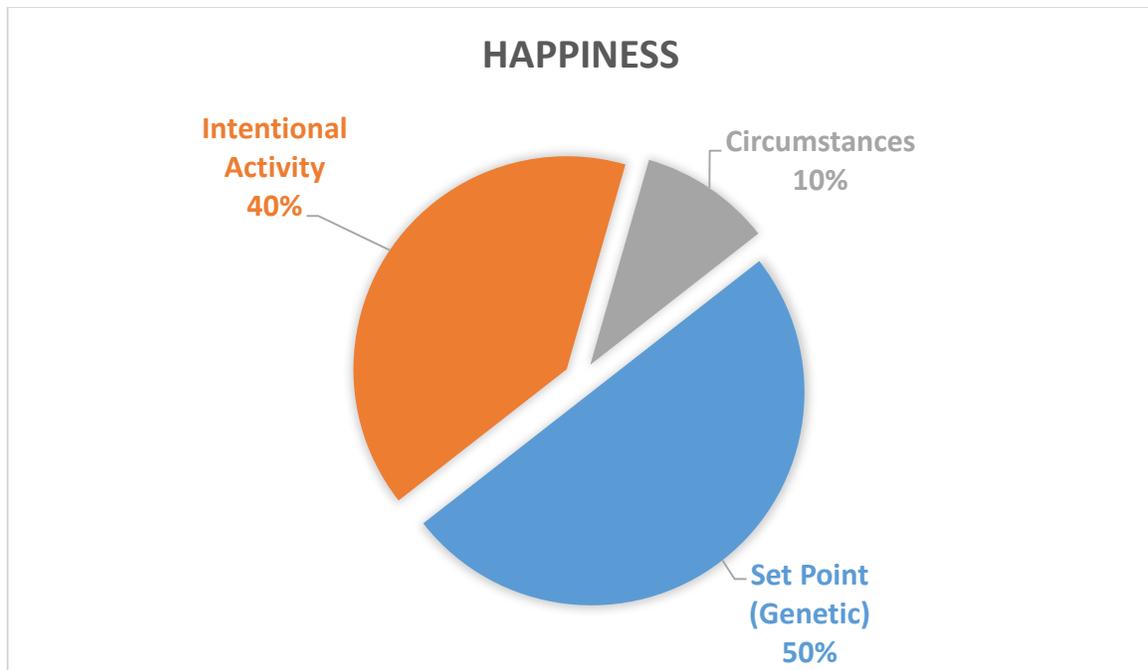


Figure 1. Set Point Diagram of Happiness (Source: Lyubomirsky, Sheldon, & Schkade, 2005)

Happiness interventions which incorporate intentional activities have been shown to be effective in increasing and sustaining happiness. According to Fordyce (1977, 1983), 14 things are fundamental for happiness such as living in present, being optimistic, having a social life, being positive, not worrying etc. Sheldon & Lyubomirsky (2006) found in their research that changing circumstances like income, location, marital status etc. have lesser effect on increasing happiness of people as compared to intentional activities. Simple strategies involving changes in behavior and other cognitive aspects can have a better effect on increasing happiness (Sin & Lyubomirsky, 2009). Positive emotions which form an important component of happiness can also be increased by employing such strategies (Diener, Sandvik, & Pavot, 1991; Urry et al., 2004).

Lyubomirsky & Layous (2013) emphasized that certain activities might increase people's happiness if deliberately practiced. They defined positive activities as "simple, intentional, and regular practices meant to mimic the myriad healthy thoughts and behaviors

associated with naturally happy people” (p.57). Dunn, Beard & Fisher (2011) broadly suggest two types of activities to discover happiness - writing/ reflection activities and experiential/ exploration activities.

Catalino, Algoe & Fredrickson (2014) observed that people who give high priority to positivity, while organizing their day-to-day life were happier. They also observed that people giving high priority to positivity have more resources and experiences positive emotions more frequently.

Happiness has been found to correlate positively with trust and negatively with selfishness. People become happier by taking revenge on those who have harmed them, however, happier people take revenge of lesser degree (Lane, 2017). Happiness growth mindsets improve well-being and lead to greater relationship satisfaction. When people are encouraged to have growing mindsets, they start believing that their happiness level can be changed. This leads to improved subjective well-being which in turn creates satisfaction in relationships (Tongeren & Burnette, 2018).

1.5 Strategies that enhance well-being

The idea of progress is an idea deeply embedded in the psyche of any society as well as nation. Technological advancements do not make a society progressive unless it is complemented by an overall sense of well-being in its people. In present day era, the importance of well-being has been recognized and this is the reason why we often come across self-help books in bookstores on how to enhance one’s well-being. A lot of resources are also available online. For instance, one can watch TED talks on well-being and achieving happiness and lot of other inspirational quotes and videos, all of which recommend certain well-being and positivity enhancing strategies. These strategies generally relate to enhancing well-being at the

intrapersonal level. There are also a number of evidence based interventions which have been developed to address both intrapersonal and interpersonal well-being. Their results are well-documented and they are backed by scientific evidence. Such interventions can either be introduced deliberately as per the needs and demands of a specific group or by evaluating and promoting the prevailing socio-cultural practices of that region including religious/ spiritual practices (Singh & Choubisa 2009). While the benefits of deliberately induced positive practices like internet based happiness exercises and classroom intervention programs are already well documented (Diener & Diener, 1995; Gilman & Huebner 2000; Park & Huebner 2005; Seligman, Steen, Park, & Peterson, 2005; Singh & Choubisa, 2009), a specialist is nonetheless required to implement the same (Srinivasan, 2012). Parks, Della Porta, Pierce, Zilca, & Lyubomirsky (2012) have described various strategies for increasing happiness. The strategies are practicing acts of kindness towards others, pursuing goals that are important to self, expressing gratitude, being optimistic, doing physical exercise or sports, nurturing one's social relationships, savoring life's joys, acting like a happy person, doing activities that make one feel "in the moment", forgiving others, practicing religion and/or spirituality, using strategies that help one cope with stress or adversity, avoiding overthinking and comparing oneself to others and practicing meditation.

It is also observed that some R/S practices like pro-social behavior, altruism, forgiveness, *Seva* (selfless service) and *Satsang* (a spiritual discourse or sacred gathering) enhance well-being. Religious literatures such as *Gita*, *Guru Granth Sahib*, and *Dhammapada* are also found to promote positive virtues such as pro-social behavior, forgiveness and gratitude which help to have better well-being. Some of the strategies existing in religion and spirituality for enhancing well-being are discussed in the following sections.

1.5.1 Religious/ Spiritual (R/S) Practices

Religion and spirituality both play an important role in enhancing well-being of an individual. Religion can be defined in many ways, however as per one definition religion comprises of various practices including rituals and beliefs associated with God or a divine manifestation having different name in different religions (Koenig, King & Carson, 2012). Practice of religion comprises of activities, behaviors, cultural beliefs and attitudes of individuals, groups or communities. Religious practices or rituals comprise of various forms, including prayer, scriptures, meditation, pilgrimage etc. (Belaire& Young, 2002; Fiese & Tomcho, 2001; Haley, Koenig, & Bruchett, 2001; Martinez, Smith, & Barlow, 2007; Weld & Eriksen, 2007).

In a summary study (not technically a meta-analysis as it has not sought to formally synthesize the results into a single, coherent study) of 139 individual studies, a positive correlation between religion and well-being was observed (Spencer, Madden, Purtill, & Ewing, 2016). Several other studies have reported how practicing religion can have a significant effect on happiness and overall sense of personal well-being (Fave, Brdar, Vella-Brodrick, & Wissing, 2013; Green & Elliot, 2010; Ismail & Deshmukh, 2012). Practicing religion was found to be a protective factor against cardiovascular disease by encouraging healthy lifestyle in church service attenders with consistent reduction in risk of mortality (Powell, Shahabi, & Thoresen, 2003).

Like religion, spirituality is also an essential contributor to well-being and has been correlated with many well-being indicators like better health , meaning and purpose in life, self-esteem and positive affect (Koenig, McCullough, & Larson, 2001; Mueller, Plevak, & Rummans, 2001; Kashdan & Nezlek, 2012). Individuals with higher level of spiritual well-being

experience lesser levels of emotional and mental illness (Brown, Carney, Parrish & Klem, 2013). Forgiveness has been found to be a quality of spiritual people which is correlated with positive mental health and other indicators of psychological well-being (Tenklova, & Slezackova, 2016; Suchday, Friedberg, & Almeida, 2006). Forgiveness is also related to overall reduction in blood pressure levels and may aid in cardiovascular recovery from stress (Friedberg, Suchday, & Shelov, 2007). Spirituality, especially meditation, helps in achieving bliss by taking us from body consciousness to the soul consciousness (Chandra, 1989). It is a personal transcendental experience which can also be called experience of unity with greater world or God or a higher power (Gall, Malette & Guirguis-Younger, 2011).

During ancient times, many *rishis* or Indian scientists developed several techniques to move from body consciousness to soul consciousness. Maharishi Patanjali, a great Indian sage, stated that mind has to be steadied, regulated and calmed to move from body consciousness to soul consciousness and achieve bliss. *Yogasutras* of Maharishi Patanjali combined all the yogic and spiritual techniques and brought them under the umbrella of *Ashtanga Yoga*, the eight limbs of Yoga. Meditation encompasses the last three limbs, which are *Dharna*, *Dhyana* and *Samadhi* (Subramanyam, 2010). Yoga can be used as a preventive method against the development of negative mood states like anxiety and depression (Shelov, Suchday, & Friedberg, 2009).

Religion and spirituality forms a strong foundation for the experience of positive virtues and well-being and reinforces positive virtues on a regular basis (Sharma & Singh, 2018). A lot of people nowadays prefer turning to religion/spirituality to seek answers for their life's problems rather than seeking help from professionals. Taheri-Kharameh (2016) emphasized that in order to increase levels of coping in individuals suffering from any disease or illness, the care plan should be written with an emphasis on patients' spiritual needs. According to Krok (2008),

people's reactions to stress relate to the configuration of their spiritual qualities. Post, Puchalski & Larson (2000) observed that 45% of clients desired integrated practices which also address their religious concerns in addition to standard medical procedures. In a poll conducted by Gallup to find the major factors behind people attending places of worship, at least on a monthly basis, spiritual programs geared towards children and teenagers have been found to be one of the major factors as stated by 64% of respondents (Saad, 2017).

Any discussion on spirituality is incomplete without a discussion of its main branch – meditation. According to Wachholtz and Pargament (2005), “Meditation has a long history of association with spiritual and religious practices. Cultures around the world integrate meditative practices into their religious and spiritual disciplines” (p. 370).

1.5.2 Meditation

The word “meditation” is derived from the Latin word *meditari*, which refers to engaging in contemplation (Hussain & Bhushan, 2010). Meditation is the key component of eastern spiritual practice, as a strategy to enhance both physical as well as mental well-being. While this practice has always been followed in eastern cultures, now even the west has recognized its benefits and adopted it. Meditation is among the most used complementary and alternative medicine (CAM) therapies by Americans, according to CAM-utilization surveys (Horowitz, 2010). According to Horowitz (2010), “Meditation refers to a group of techniques, most of which originated in eastern religious or spiritual traditions and are also practiced today for stress reduction and other health-related purposes” (p. 223). Manocha (2000) described meditation as a “discrete and well-defined experience of a state of thoughtless awareness or mental silence, in which the activity of the mind is minimized without reducing the level of alertness” (p. 1136). Walsh and Shapiro (2006) defined meditation from cognitive and

psychological perspective, as practices for self regulation meant for bringing processes of mind under voluntary control. A national survey on the use of this mind–body form of medicine showed increased usage between 2002 and 2007 (Barnes, Bloom & Nahin, 2008).

Benefits of meditation have been well documented in literature. In a health-directed meditation based intervention program, Brendstrup & Launso (1993) found that the program was beneficial in reducing headaches and pain in the neck, extremities, and joints along with a drop in the use of tranquilizers, anti-rheumatics, and gastro-intestinal agents. Meditation has also been found to reduce stress and increase happiness, confidence, and one’s productivity (Coholic, 2005; Hawks, Hull, & Thalman, 1995; Hoppes, 2006).

Meditation has been categorized in terms of focused attention and open monitoring. Focused attention meditation techniques involve continuous attention on a specified object, whereas in open monitoring meditation, content of experience is monitored without reacting to it (Lutz, Slagter, Dunne, & Davidson, 2008). Travis and Shear (2010) suggested a third category of meditation called automatic self-transcending meditation. In this category, during meditation the individual transcends the impressions in his mind and tries to connect with the object of meditation that is absolute reality or peace or bliss. The two most scientifically researched meditation techniques are Transcendental Meditation (TM) and Mindfulness.

Transcendental Meditation - It is a vedic meditation, which is derived from the vedic texts of India, first written around 5000 years ago. TM is practiced for 15-20 minutes, two times in a day. TM as per the traditions of Maharishi Mahesh Yogi, is taught by certified teachers who have undergone specific training for this purpose. The practice does not require any specific change in one’s diet, or lifestyle and does not force any belief system upon the practitioner (Chalmers, 1989; Orme-Johnson, 1995). TM develops focus, creativity and self control as it

takes the mind away from surface level thinking (Beckley, 2014). TM is known to reduce anxiety (Eppley, Abrams & Shear, 1989), increase self-actualization (Davies, 1977), decrease blood pressure (Ooi, Giovino & Pak, 2017) and reduce addiction (Aron & Aron, 1980).

Mindfulness Meditation- Mindfulness is a Buddhist philosophy which is found in eastern traditions (Schmidt, 2011). Jon Kabat-Zinn (2003) defined mindfulness as “paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment” (p. 145). More and more evidence is being found regarding efficacy of mindfulness based programs in promoting well-being (Irving, Dobkin, & Park, 2009), reducing depression (Khoury et al., 2013) and avoiding recurrence of depression (Chiesa & Serretti, 2011). Mindfulness based interventions, the most common being Mindfulness Based Stress Reduction (MBSR), are being used by psychologists the world over to enhance well-being.

MBSR involves various mindfulness techniques of meditation including body scan, postures of yoga etc. as per the guidance of a certified trainer (Holt, 2015). MBSR was developed to provide relief from chronic pain, however, it has also been found to be efficacious in dealing with stress, anxiety and depression (Roth & Creasor, 1997; Shapiro, Schwartz, & Bonner, 1998).

There are many meditation techniques and individuals can have their own preferences. Burke (2012) reported that individuals preferred *Vipassana* or *Mantra* meditation compared to Zen and Qigong techniques.

Meditation on heart has been recommended in many eastern spiritual practices. Heart responds to everything, good and bad giving a signal whether the activity is right or wrong (Patel, 2016). The heart has long been believed to be the seat of the soul in human body. It is not

merely an organ for pumping blood but also has the capability to feel and communicate (Mehrotra & Chandra, 2014). Heartfulness spiritual practice is a heart based meditation which is a path for experiencing one's inner self ("Experience Heartfulness," 2017).

Apart from meditation, spirituality has other elements too which aim at enhancing one's well-being. These are yoga, *satsang*, music, art therapy etc. All these have well defined programs to improve well-being and give progress on spiritual path.

1.5.3 Yoga

Yoga involves various physical and mental practices which are designed to give spiritual advancement (Bussing, Hedtstuck, Khalsa, Ostermann, & Heusser, 2012). Yoga is primarily a practice aimed at '*samadhi*' – uninterrupted self-awareness, contentedness and peace (Macneill, 2012). Wilson & Spencer (1990) found that people living in a yoga *ashram* had better psychological characteristics and could interpret the experiences of life more positively.

There has been a rising trend in the popularity of yoga worldwide. In the United States, approximately 9.5% of the population were practicing yoga in 2012, compared to 6.1% in 2007 (Clarke et al., 2015) whereas in Australia, approximately 3.5% of the population was practicing yoga in 2010, compared to 2.9% in 2006 (Australian Sports Commission, 2010). In England as well, percentage of population practicing yoga increased to 1.28% in 2006/08 from 0.46% in 1997/99 (Ding & Stamatakis, 2014). Yoga based lifestyle interventions were found to be effective in reducing anxiety and improving subjective well-being and personality (Yadav, Megan, Mehta, Mehta & Mahapatra, 2012). Yoga can be used for the purpose of stress management (Penman et al., 2012) and many individuals prefer self-management using yoga over clinical intervention as it has no side effects (Issakidis & Andrews, 2002; Jorm et al., 2000a; Jorm et al., 2000b; Pilkington et al., 2005).

1.5.4 Satsang

Satsang (spiritual/religious activity in a group) is a powerful tool in promoting well-being in Indian population. *Satsang* refers to the company of holy people who unremittingly seek God. It is believed that the company of enlightened people radiates positive or spiritual energy to the mind, which further accelerates a member's spiritual progress (Goel 2008). According to Singh, Jain and Singh (2014), when a person gets guidance from a *Guru* or an elder, one is able to recognize one's abilities to feel, act and think in a better way during *Satsang*. The company of noble people in a group activity benefits all the members of the group and converts the diversification into cohesion.

The spiritual essence of *Satsang* helps a person connect with inner self or a divine presence, which may be symbolized as *Guru* or God (Singh et al., 2014). Participation in group activities like *Satsang* helped rural women of India in remaining free from stresses and feeling empowered (Singh et al., 2014).

Satsang has a spiritual essence which paves the way for connectivity with oneself and with our own higher self, whether it is represented as *Guru* or idolized as God (Singh, et al., 2014). Indian rural women were found to be feeling more empowered and stress free after participating in this indigenous practice, and were able to nurture healthier interpersonal relations and strengthen family and social support – a requirement for well-being. (Singh, et al., 2014).

1.5.5 Music and Art Therapy

Music and art therapy are two key forms of creative therapy. Both art and music therapy, like other creative therapies, can be used to support a wide range of people with different needs. They aim to address a variety of conditions, issues and emotional states, which may encompass family problems, fears and painful past experiences as well as ongoing difficulties

(Ponomarenko, Yap, & Peeran, 2017). Music has been effectively used to heal and improve the mental health of people and give them a sense of well-being in emotional and social terms (Chiang, 2008). Listening to songs with pro-social messages increases pro-social thoughts. This increase has a positive effect on behavior (Greitemeyer, 2009). Efficacy of art therapy was highlighted by Perry (2008) who documented how Positive Art Therapy (PAT) positively affects the core functions of brain, which do not respond to traditional interventions. Jensen (2013) found that art activities have positive benefits like feeling of well-being, better self confidence etc.

1.6 Spirituality based organizations

A list of ten organizations which have presence in many countries, mass following (either followers more than one million or having at least one hundred centers worldwide or having structured meditation/spirituality based programs and approved courses), good reputation and good track record that could be verified by independent sources is given in Table 1.

Some of these like Art of Living, Isha foundation, Chinmaya Mission Brahma Kumaris, Vipassana and Sahaj Marg/Heartfulness etc. have very popular meditation/spirituality based programs with large following. Their primary objective is to spread spirituality among masses, however, they also undertake other activities like yoga, social service, etc. Isha foundation, for example, works in the area of yoga, meditation, social upliftment and ecological conservation. Chinmaya Mission, Rama Krishna Mission and Divine Life Society spread ancient *Vedantic* knowledge (wisdom of ancient Indian scriptures like *Vedas*, *Geeta* etc.) in different ways which are easily understandable to common people. *Patanjali* focusses on curing diseases with the help of yoga, *Pranayama* (breathing exercises) and meditation. They also provide *ayurvedic* treatment and combine yoga and naturopathy in *Patanjali Yog Gram*. *Kaivalya Dham* focuses on physical

health improvement using ancient yogic techniques and modern science. Emphasis of the organization is on teaching and research in the field of yoga, however, they also run structured programs for improving health and happiness with practice of *Yogasana* (special bodily postures of Yoga), *Pranayama* and meditation. The succeeding sections touch upon the different types of spirituality based organizations followed by their predominant activities.

Table 1*Some Spirituality based organizations and their activities*

Org. Name, Org. Head and websites	Main Belief/Founder's teachings	Activities/Area of Work	Size of Org.
Art of Living Head: Sri Sri Ravi Shankar www.artofliving.org	Focus on stress management with <i>Pranayama</i> and <i>sudarshankriya</i> . Teachings based on ancient Indian literature and various religions.	Happiness program, Art of Living part II. Executive program for senior executives and programs like Art Excel and Youth Empowerment and Skills (YES) for students. All programs have <i>sudarshankriya</i> , <i>Pranayamas</i> and various teachings.	Spread in 150 countries. Touched lives of 300 million people.
Brahmkumaris Head: Dadi Janki www.brahmakumaris.org	Main focus is on spiritual study, meditation and self-transformation	Foundation course in <i>Rajyoga</i> meditation, Positive thinking course.	8500 centres worldwide.
<i>Vipassana</i> Head: As taught by Late Shri S.N. Goenka www.dhamma.org	To see things as they really are through meditation	The technique is taught through a ten days program focusing on the deep interconnection between mind and body	177 centres around the world.
Sahaj Marg/ (Propagated by Shri Ram	Heartfulness To realize the divinity within by spiritual practice comprising of	Group meditation, individual sittings, Heartfulness programs, training programs,	Followers in the range of 1 million. Presence in 120

Chandra Mission) Head: Shri Kamlesh D. Patel also known as Daaji www.sahajmarg.org, www.heartfulness.org	cleaning, meditation with yogic transmission, prayer, constant remembrance etc.	retreats, spiritual gatherings, ashram stay.	countries.
Isha Foundation Head: Shri JaggiVashudev also known as Sadhguru www.ishafoundation.org, www.isha.sadhguru.org	Technology to create external well-being and inner values.	Yoga, social upliftment, ecological conservation.	5 million volunteers.
Chinmaya Mission (Central Chinmaya Mission Trust) Head: Swami Swaroopananda www.chinmayamission.com	Makes available the ageless wisdom of <i>Advaita Vedanta</i> , the knowledge of universal oneness.	Spreading spirituality and <i>Vedanta</i> through weekly gathering of children, youth wing, <i>vanaprastha</i> , etc.	20 centres spread around the world.
Ram Krishna Mission Head: Swami Smaranananda www.belurmth.org	Ancient philosophy of <i>vedanta</i> . Harmony of religions, promoting peace and equality.	Spiritual training, propagation of <i>vedanta</i> teachings, medical relief and educational programs.	187 branch centres. Headquarter at Belurmth
Divine Life Society Head: Swami Vimalananda www.dlshq.org	Realise God and hence terminate this incessant cycle of birth and death.	Educational philanthropic, religious studies, spirituality.	300 branches worldwide. Head quarter Rishikesh.
Patanjali (including Patanjali Yogpeeth, Divyayoga Mandir,	Focuses on curing various diseases using <i>pranayama</i> ,	Yoga science camps teach <i>pranayama</i> , <i>Yogasanas</i> and talk about various home	A large number of Patanjali Hospital, Arogya

PatanjaliYog Gram etc) Head: Baba Ram Dev www.divyayoga.com	<i>Yogasanas</i> , naturopathy and <i>ayurvedic</i> medicines	remedies. Patanjali Yogpeeth, Patanjali Chikitsyalaya and Yog Gram give treatments.	Patanjali Kendra, Mega Stores, camps spread around the world.
KaivalyaDham Head: Swami Maheshananda www.kdham.com	To bring together traditional Yoga with modern science	Three main programs focusing on improving health and happiness with practice of <i>Yogasanas, pranayama</i> , meditation etc.	Yoga college in Pune and online courses.

Above mentioned organizations are discussed in detail in the following sections.

1.6.1 Art of Living

Programs of Art of Living focus on stress management with *sudarshan kriya* being the backbone of all the programs. The happiness program of Art of Living is the basic course in which *sudarshan kriya* and *pranayama* are taught, whereas, the Art of Living part II is a four day residential program encompassing various techniques of meditation, yoga, scriptures based lectures etc. They have an executive program for senior executives and programs like Art Excel and YES for students.

1.6.2 Brahma Kumaris

Brahma Kumaris primarily practice a technique of *Rajyoga* (yoga of mind) or meditation. Their main focus is on spiritual study, meditation and self-transformation. They have programs like the foundation course in *Rajyoga* meditation which provides a logical and practical understanding of the relationship between spirit and matter. Another course is the positive thinking course which gives understanding of the nature of thought.

1.6.3 Vipassana

The organization of *Vipassana* practices one of the ancient Indian techniques of meditation called *Vipassana*, which means to see things as they really are. The technique of *Vipassana* practice was rediscovered by Gautam Buddha, a great Indian sage. It is considered a remedy for universal ills, removing mental impurities and resulting in happiness with liberation. The technique is taught in a ten day program focusing on the deep interconnection between mind and body.

1.6.4 Sahaj Marg/Heartfulness

Sahaj Marg or better known as Heartfulness is a practice propagated by Sri Ram Chandra Mission. Heartfulness offers a platform for spiritual and practical living in more than 100

countries. The practice is based on inner experience through meditation. It is a refined and simplified form of *Rajyoga*, suitable for modern everyday life.

The practice primarily includes a morning meditation, evening cleaning (cleaning of mind) and prayer meditation at bed time. These three basic elements combine to create a complete and effective system for inner transformation. *Pranahuti*, an ancient yogic technique, also called yogic transmission is the backbone of Heartfulness practice. Meditation in Heartfulness is done individually by the practitioner as well as in a group under the guidance of a trainer. Individual sittings of meditation are given by the trainers to practitioners making the practice more effective.

In addition to these elements of practice, there are other elements like Universal Prayer, Constant Remembrance and The Ten Maxims. *Abhyasi* training program at CREST, stay in retreat centers, annual *bhandaras* (spiritual gatherings), and stay in Himalayan ashram are some of the supporting elements of Heartfulness practice.

1.6.5 Isha Foundation

Aim of Isha Foundation is to raise every human being to the peak of his/her potential, be exuberant, all – inclusive, in harmony within themselves and the world. They have various programs for yoga. Programs for beginners are *Hathayoga* program, *Namaskar*, Inner Engineering etc. Advanced programs are *Bhava Spandana*, *Shoonya* Meditation and *Samyama*. Similarly, there are some other programs including a program for becoming a teacher.

1.6.6 Chinmaya Mission

Chinmaya Mission follows the *Vedic* teacher–student tradition and makes available the ageless wisdom of *Advaita Vedanta*, the knowledge of universal oneness, providing the tools to

realize the wisdom in one's life. The mission offers a wide array of *vedanta* study forums for all ages, promotes Indian classical art forms and operates numerous social service projects.

1.6.7 Ram Krishna Mission

Ram Krishna Mission aims at the harmony of religions, harmony of the east and the west, harmony of the ancient and the modern, spiritual fulfillment, all-round development of human faculties, social equality and peace for all humanity without any distinctions of creed, caste, race or nationality. They have various activities in the areas of spiritual and cultural programs, welfare programs, educational services, relief etc.

1.6.8 Divine Life Society

Divine Life Society carries out its objective of a world-wide revival of spirituality through publication of books, pamphlets and magazines dealing scientifically with all aspects of yoga, *Vedanta*, universal religion & philosophy and ancient medicine. The organization arranges cultural and spiritual discourses, establishes training centers for the practice of yoga and revival of what they call true culture. The institution runs a two months yoga course at the yoga-vedanta forest academy.

1.6.9 Patanjali

Patanjali Yogpeeth focuses on curing various diseases using *pranayama*, *yogasana* and *ayurvedic* medicines. In yoga science camps of Patanjali, *pranayama* and *yogasana* are taught along with the knowledge about various home remedies. *Pranayama* also has effect on mind in addition to body and helps us enter the state of meditation.

1.6.10 Kaivalya Dham

Kaivalya Dham's specific aim is to bring together traditional yoga with modern science. The organization runs mainly three programs that are: a) yoga and relaxation, b) yoga and

naturopathy, and c) yoga and *Ayurveda*. In these programs the focus is on improving health and happiness with practice of *yogasana*, *pranayama*, meditation etc.

1.7 Predominant activities of spiritual organizations

When we look at the activities of spiritual organizations described above, we find that there is a lot of commonality. Some of the predominant activities of these organizations are *pranayama*, *yogasanas*, mind purification processes, *seva*, meditation, spiritual camps, *satsang* etc. These activities are discussed in following sections.

1.7.1 Pranayama

“*Prana*” (life force) is considered to be the vital energy required by the physical layer and the subtle layers of our body, while “*Ayama*” refers to regulation of the life force. Without this energy the body will perish. “*Pranayama*” means working to lengthen or regulate the life force. (“What is *Pranayama* and Yoga?” 2018). The aura around the body is due to the life force or *prana*. The energy flows through thousands of *nadis* or energy channels and *chakras* or centers of energy. The practice of *pranayama* improves the flow of *pranic* energy through *chakras* and *nadis*. It makes one energetic, enthusiastic and positive and in turn improves the mental and physical health of the person.

State of mind of a person depends upon the quantity and quality of *prana* and the way it flows through *nadis* and *chakras*. The mind remains regulated and positive if the *pranic* energy is flowing well in a continuous, smooth and steady manner. If the importance of the system is not understood, there may be jerky and broken flow due to partial or full blockage of *nadis*. This results in worries, fears, conflicts, tension and other negative states of mind. Problems surface on the physical level after being generated first at subtle level. Sickness of physical body is preceded by sickness of *pranic* body (“What is *Pranayama* and Yoga?” 2018).

1.7.2 Yogasanas

Yogasanas refers to yogic postures which are adopted for going towards higher states of well-being. While performing *yogasanas* energy is manipulated in desired direction. *Yogasanas* enable a person to sustain higher dimensions of energy. Performing *yogasanas* also enhance our thinking, feeling and life experiences. They help us achieve joyful, blissful and a healthy state. As one consciously brings one's body into certain postures, one creates the passage of energy flow that can alleviate our consciousness. *Yogasanas* align our inner system in the line of celestial geometry, thereby improving our health, joy, blissfulness and balance. *Yogasanas* also provide relief from chronic health conditions in addition to synchronisation of mind body and energy system ("Yogasanas," 2018).

1.7.3 Mind purification processes

As things originate first in the mind, it is very important to purify the mind and regulate its functioning. It should get the orientation to function correctly for the good of mankind (Rajagopalachari, 2018). To cure the ailments facing modern societies, it is important to start working with the mind rather than working at the periphery or physical layer of existence. Mind purification processes cleanse our mind and make it a regulated system.

1.7.4 Seva (Social service)

Seva or social service can be of many types. It can be divided into five categories depending upon the intention of the person doing the same. The first type of social service or *seva* refers to when a person is not even conscious about it. He is doing it simply because it is in his very nature to help others. The second type of *seva* is because the situation asks for it and one comes forward and helps. The third type of *seva* is when a person does it because he gets joy while doing it. The fourth type of *seva* is done merely for expecting some kind of merit or

deriving some benefit in the future. Whereas in the fifth type of *seva* one just wants to show off or serve just to improve one's image or do it to gain social or political recognition. The fifth type of *seva* can exhaust a person while the first type brings no tiredness. At whatever level one starts doing *seva*, one must move higher and higher and try to reach the level of doing first type of *seva* (Seva, 2018).

1.7.5 Meditation practices

Different organizations do meditation in different ways however, they try to achieve the same results. Art of living focusses on *sudarshan kriya* which prepares a person for taking higher level of mediation. Their *Sahaj Samadhi* course is designed to take a person into mediation. Brahma Kumaris starts with giving knowledge and takes a person into an open eye mediation focusing on an object and then later on thought process. *Vipassana* mediation is designed to see things as they really are without getting involved in them or through equanimity. *Sahaj Marg/Heartfulness* Mediation starts with a subtle suggestion of divine light in the heart and with the help of yogic transmission leads us to absorption and even higher state. It is also accompanied by cleaning process, prayer meditation and other practices.

1.7.6 Spiritual Camps

Spiritual camps are like retreats involving spiritual practices and various other activities with the participants staying together typically for a week. Chinmaya Mission calls them, *Jnana Yajnas* which involves public discourses series on vedantic scriptures (“*Jnana Yajnas And Spiritual Camps*,” 2018). Art of living conducts its advanced course in a four day retreat at different locations. *Sahaj Marg* calls them *bhandara* which is typically of three days on the occasion of birth days of spiritual masters. Patanjali conducts spiritual camps at their main facility in Haridwar and at many locations across the world. For *Vipassana* all the training

courses are retreats, lasting typically for ten days. Similarly, Brahma Kumaris conducts residential courses typically for five days duration at their facility at Mount Abu.

1.7.7 Different *Satsang* practices

Satsang refers to different activities for different organizations and people. For art of living *Satsang* combines philosophy, discussions, music and dance with an understanding that these spheres belong together. They connect intuitive and intellectual activity together which correspond to right and left halves of the brain to create a balance ("*Satsang*", 2018).

In *Sahaj Marg*, *satsang* refers to group meditation lasting for around one hour where all the practitioners come to a place for meditating together. Every ashram or center of *Sahaj Marg* organises *Satsang*, at least once every week. In many rural areas *satsang* is referred to chanting of hymns.

1.8 Heartfulness/Sahaj Marg

As already mentioned, Heartfulness/ *Sahaj Marg* is amongst many spiritual organisations of India. As the present study is focussed on Heartfulness, its practice and processes are discussed in details in subsequent sections.

Heartfulness spiritual practice also known as *Sahaj Marg* has been around for quite some time, however, it has come in the limelight only during last few years. Heartfulness meditation is about tuning in to our heart, and to be centred in our highest self. Meditation strengthens the connection with our inner self and cultivates an inner wisdom that guides our lives. It also helps enhance the qualities like courage and acceptance. There are no prerequisites other than basic mental health and an attitude of openness and wonder.

1.8.1 Heartfulness meditation

Meditation is a process of thinking continuously about one thing which may be for making a fortune or making discoveries or designing a building. The thought can strongly influence our lives if we think only about that matter. It is also said that one becomes what one meditates upon. In Heartfulness meditation, one sits comfortably and gives a subtle suggestion that divine light is filling the heart. It is only a gentle suggestion that light is present, and not to be visualized. One has to ignore the thoughts arising in the mind and wait for the divinity patiently. As one does not pay attention to unwanted thoughts, one learns to regulate the mind, as slowly the chatter in the mind reduces with the practice. With deepening of practice one can learn to remain balanced during other activities as well.

With practice of meditation, sometimes one also attains a state known as absorption, which is a state of thoughtlessness. In that state one may feel as if one is lost, without consciousness of himself experiencing total rejuvenation.

1.8.1.1 Group meditation

When people meditate together in a group, they experience much better effect due to meditation as the effect of their effort increases manifold. Heartfulness practitioners practice group meditation at a Heartfulness center, typically once a week. The group activity also develops brotherhood feelings, tolerance, being positive about others, learning from others etc.

1.8.1.2 Individual sittings with trainers

Individual sittings with trainers of Heartfulness provide essential support for the practitioners, right from the time they are introduced to the practice. Practitioners are given three introductory sittings on consecutive days for initiating them to the practice. Later on, it is recommended to take one individual sitting every week from a Heartfulness trainer. These

sittings are supposed to clear the impressions, impurities and other complexities in the hearts. The trainers who function under the guidance of the spiritual master act as conduits for the divinity, also called transmission. While receiving a meditation sitting, the practitioner sits comfortably facing the trainer and meditates along, same way as meditating himself during daily practice. Individual sittings last typically for 30 minutes.

1.8.2 Cleaning

Cleaning process is one of the main elements of Heartfulness practice (Cleaning, n.d.). Our thoughts, emotions actions and reactions create impressions in our heart. Due to these impressions also called *samskaras*, people are not able to view the reality correctly, causing distortions in their behavior. Heartfulness cleaning is an active process in which “will power” is used. The practitioner imagines that all the complexities and impurities are leaving his entire system from the back. After sometime he supposes that a current of purity is coming from the source and entering his system from the front. This current is flowing throughout his system, carrying away any remaining complexities and impurities. He finishes with the conviction that the cleaning has been completed effectively. Cleaning process is recommended to be done in evening when one has finished the day’s work.

1.8.3 Prayer meditation

Prayer meditation is the third essential element of Heartfulness practice (Prayer Meditation, n.d.). One meditates on the meaning of prayer 2-3 times just before sleeping, after finishing all the works. In the morning the prayer is repeated once before morning meditation.

The prayer is given below:

“O Master!

Thou art the real goal of human life.

*We are yet but slaves of wishes
Putting bar to our advancement.
Thou art the only God and Power
To bring us up to that stage.”*

In the first line the master refers to God, considered to be the ultimate master residing in the heart of each and every person. The first line sets the goal which is God, as in the Heartfulness belief the human spiritual guide is supposed to help the aspirants in developing contact with divinity inside. The second line states the fact that slavery to wishes is the obstacle in the spiritual progress. The third statement recognises that God alone can help in the process of rising to higher existence.

1.8.4 Universal prayer

Universal prayer is dedicated for the upliftment and benefit of everybody. All practitioners are advised to do this in addition to the three essential elements of practice. The prayer has following instructions:

"At 9:00 P.M. sharp every *abhyasi* (practitioner), wherever he or she might happen to be at the time, should stop his or her work and meditate for fifteen minutes, thinking that all brothers and sisters are being filled up with love and devotion and that real faith is growing stronger in them."("Universal Prayer,"2018).

1.8.5 Constant remembrance

Constant remembrance is the practice in which mind is trained specifically to cultivate an ongoing connection with the divine within. As one remembers the divine continuously, the spiritual practice becomes dynamic and full of life ("Constant Remembrance," 2018).

Constant remembrance can be achieved by giving a subtle suggestion to oneself that in his place the divine is carrying out all the activities as well as having all the thoughts. One shifts the doership from oneself to the divine. This increases the faith and confidence as one receives the inner guidance. As one remembers the divine, one also develops love for divinity. This helps in increasing one's love for God and leads to a union with God.

1.8.6 Spiritual gatherings

Birthdays of spiritual masters of *Sahaj Marg* are celebrated as *bhandaras* (spiritual gatherings). Large numbers of practitioners gather to meditate together under the guidance of spiritual master. The gatherings are held four times in a year, first being on *Besant Panchami* (an Indian festival), second on 30th April, third on 24th July and the fourth gathering on 28th September. In addition to meditation the practitioners participate in other spiritual activities and have meals together.

1.8.7 Retreat

Sahaj Marg Spirituality Foundation (SMSF) has established six retreat centers where practitioners can retreat from everyday life to introspect and meditate. After spending some time in a retreat center, the practitioner returns to his normal life, spiritually replenished and having the required balance of life. Three of the retreat centers are in India whereas one each is present in United States of America, Denmark and Malaysia.

1.8.8 Ashram stay

Ashram stays are organized for groups of *abhyasis* at the Himalyan *ashram* situated at Satkhol in Uttarakhand. Each group, comprising of up to 60 participants, stays for a period of one week and the process continues throughout the year, except for the breaks required for maintenance and adverse weather conditions. The Himalayan *ashram* is considered to be a

special place where practitioner can immerse themselves in a quiet and subtle atmosphere. Satkhol is located in the foot hills of Himalayas in the Nainital district of Uttarakhand at an elevation of approx. 1900 m. The ashram has a heavenly atmosphere which helps in deep meditation and achieving calmness and stillness of mind.

1.8.9 Training programs

Centre for Research, Education, Sadhana and Training (CREST) is located near Bengaluru having various activities related to training and research. Participants are exposed to various philosophies cultures and ideologies. They are encouraged to appreciate the multiplicity and the similarity of essence while approaching the divinity.

The environment of CREST is spiritually enriched, having similarity with ancient education systems called *gurukuls*. There are many programs which address the intellectual, physical, moral and spiritual aspects of human existence. The mission statement of CREST is given below:

“God has been of perennial interest to humanity. He has been the subject of deep thought, discussion and description in human history. Many a Master in the human annals had experienced HIM and taught the succeeding generations the methods of reaching HIM. These spiritual practices have later crystallized into religions. Amidst a welter of religions the Quest for the Spirit has survived and is continuing. It is unique. *Sahaj Marg* is this unique Quest for the Spirit and incorporates in itself the quintessence of the ageless wisdom of humanity.”

1.9 Relevance of Study

During the past several decades, several spirituality based organizations have made a niche for themselves. Different organizations have a different scope of work. However, “getting in touch with your inner self” is the core objective for most of these organizations. Recognizing

the importance of spirituality in present era, Fisher (2011, p.18) in his article aptly described spirituality as being positioned at the heart of human experience (McCarroll, Connor, & Meakes, 2005) and it being experienced by everyone (Nolan & Crawford, 1997). Not only is it believed that each individual has spiritual needs (Oldnall, 1996) but also it is claimed that human spirituality in a very real sense unifies the whole person and is an inbuilt feature of the human species that develops from the beginning of an individual's life (or not) depending on prevailing conditions (Hay, Reich & Utsch, 2006). Spirituality can thus be seen as a vital component of being human.

Spirituality has now been identified as an important component of well-being across the world. Research has time and again proven how important it is to address one's spiritual needs in the context of overall well-being (Ebrahimi, Ashrafi, Eslampanah, & Noruzpur, 2014; Poor, Borji, Borji, & Moslemi, 2016; Rowold, 2011). Spirituality based organizations are doing their bit in providing people with the necessary platform to identify their inner needs for their personal growth and peace of mind. Documenting a study in college students' spirituality, Brown and Parish (2011, p.2) highlighted a research by Svoboda (2005) who emphasized that this interest in spirituality will continue to increase among students as they face various issues and concerns. The students now a days face complex and global society that brings up many questions which their parents did not face (Speck, 2005, p.2). Another thing that comes to fore from these studies is that spirituality is not just limited to middle aged or older age group but even youth who is as interested in discovering it. People are gradually discovering the importance of spirituality for their physical as well as mental health. Lack of spiritual development was associated with overeating, risky behavior, low self-esteem, and poor health (Kass, 2002). Koenig (2002) reports

that spirituality is related to health to such a great extent that nearly two-thirds of American medical schools taught courses on religion, spirituality, and medicine in 2001.

Due to the fast paced life of present era and the effort of practitioners, spirituality has garnered a lot of popularity and has become an umbrella term. Any mention of “spirituality”, elicits mention of other related practices such as yoga, healing, and complimentary mind-body therapies. In India itself, a lot has been happening in these areas.

The activities and the presence of ten very active spirituality based organizations in India were enumerated in previous sections. Every organization has its own set of beliefs and a way of teaching, and it was decided to focus on one of the organizations` program that is Shri Ram Chandra Mission, propagating a spiritual practice called Heartfulness/*Sahaj Marg*. Effectiveness of Heartfulness practices was explored in the present research.

Chapter 2: Review of Literature

The review of literature is presented in five sections. At first, studies done on effect of meditation and related activities (spirituality, yoga and any mind-body complimentary therapies) on well-being are reviewed. Second and third sections discuss the effect of meditation and spirituality based programs on psychological and physiological parameters, respectively. The effect of meditation and related activities on Heart Rate Variability (HRV) is reviewed in the fourth section. Finally the fifth section states the need for study, objectives and hypothesis.

2.1 Effect of meditation and related activities on well-being

In recent times, it has been well established that well-being can be enhanced by practicing meditation and/or participating in spiritually inclined activities. In a study to assess the associations of a culturally tailored intervention and pre-existing religious/spiritual (R/S) practices with indicators of well-being among elderly women in rural India, results revealed that field experimental group participants improved significantly on physical/body balancing and self-care; no changes were observed on the other well-being measures following the intervention. Practitioners of pre-existing R/S practices were found significantly different from the non-practitioners on some indicators of health, quality of life and well-being (Singh et al., accepted).

Sharma & Singh (2018) studied the mediating role of positive virtues, specifically gratitude, forgiveness and altruism and found that gratitude mediated the relationship between religiosity, spirituality and well-being via two pathways of forgiveness and altruism. Kaur (2017) in her study highlighted how inclusion of yoga and meditation helped improve the mood, reduce stress and control anti-social behavior in female prisoners in Delhi jail as compared to the control

group. In a study of 100 adolescents, Agarwal and Dixit (2017) examined the role of meditation on mindful attention awareness and life satisfaction among adolescents. While meditation had no effect on mindful attention awareness of adolescents, a significant positive difference was seen on life satisfaction of adolescents.

In a study to assess the associations of a culturally tailored intervention and pre-existing R/S practices with indicators of well-being among elderly women in rural India, field experimental group participants improved significantly on physical/body balancing and self-care whereas practitioners of pre-existing R/S practices were found significantly different from the non-practitioners on some indicators of health, quality of life and well-being (Singh et al., in press). In a study of 60 meditators and 60 non-meditators, Khandelwal and Koradia (2017) looked into the effects of practicing meditation on levels of mindfulness in daily life and also to understand if any relationship exists between level of mindfulness and psychological well-being of its practitioners. The study while reporting a significantly strong positive relationship between levels of mindfulness and well-being also established significantly higher levels of psychological well-being in meditators as compared to non-meditators. Further, meditating participants were also found to score significantly higher on traits of observation and awareness.

Mohamed (2015) examined the efficacy of Loving Kindness Meditation (LKM), a meditation technique intended to foster acceptance of oneself and others, while increasing mindfulness and concentration at the same time. According to the author, this type of meditation is practiced through direct well-wishing, typically by the repetition of phrases such as, “May (I/someone else) be happy”. A group of 30 young and non-meditating adults with mean age of 19 years was recruited for the study and a 2 week training of LKM was provided. Results indicated a significant increase in the subjective reports of mindfulness, happiness, hopefulness and

gratitude. In a study comparing mindfulness meditation and LKM, Fredrickson et al. (2017) found a significant increase in positive emotions of the participants of both meditation types however, no change was observed in their negative emotions. Their study showed that both mindfulness meditation and LKM can improve emotional well-being.

Montero-Marin et al. (2016) assessed the impact of a 1 month *Vipassana* retreat on the well-being, personality and psychology of experienced meditators. The experimental group consisted of 19 experienced meditators who participated in the 1 month *Vipassana* retreat, while the control group consisted of 19 experienced meditators who did not participate in the 1 month *Vipassana* retreat. The experimental group, on an average meditated for 8 to 9 hours per day, was given a vegetarian diet and silence was compulsory. After one month, the experimental group showed increase in non-attachment, observing, positive-affect, balance-affect, and cooperativeness; and decrease in describing, negative-others, reward-dependence and self-directedness. Non-attachment had a mediating role in decentering, acting aware, non-reactivity, negative-affect, balance-affect and self-directedness; and a moderating role in describing and positive others, with both mediating and moderating effects on satisfaction with life. The authors concluded that even when both the experimental and control group consisted of experienced meditators, the one month *Vipassana* retreat in experimental group showed vast improvements in well-being, personality and psychology.

A Thai study explored the efficacy of *Vipassana* meditation on life satisfaction in a sample of 120 university students (18-24 years) .The experimental group practiced *Vipassana* meditation for 10 days (ten hours per day and total hours taken was three hundred hours). Results revealed increased life satisfaction amongst the experimental group as compared to the control group (Inwongsakul & Sampathkumar, 2015).

Bach and Guse (2015) evaluated the effect of contemplation and meditation training, with a focus on developing great compassion, on the psychological well-being (PWB) of adolescents. Two groups were formed- the contemplation and meditation group and the comparison group. Both the groups completed measures of PWB before and after the intervention. Results revealed statistically significant increases for contemplation and meditation group in environmental mastery and personal growth, as well as decreased negative affect, which was not noticed for the comparison group.

Marquès-Brocksopp (2014) explored mindfulness in the context of visual impairment. Blind and partially sighted individuals participating in regular mindfulness practice were administered semi-structured interviews, the narratives of which were later thematically analysed. The results revealed that mindfulness enhanced spiritual well-being by improving their sense of intrapersonal, interpersonal, and transpersonal ‘connectedness’, which was related to a self-perceived increase in emotional, social, and physical health.

Ivtzan and Papantoniou (2014) examined the association of the extent of yoga practice with meaning in life and gratitude in a sample of 124 adults. Number of years during which individuals practiced yoga for at least twice a week was taken as the extent of yoga. Results indicated that meaning in life and gratitude are correlated with extent of yoga practice. In a similar study, efficacy of yoga on psychological well-being and quality of life of people suffering from anxiety disorders was explored (Annapoorna, Latha, Bhat & Bhandari, 2011). The 50 participants underwent sessions of *asana*, *pranayama*, *dhyana*, relaxation training for 45 minutes which were suitable for anxiety patients. They were then instructed to practice it once a day for 3 months, in addition to taking a balanced diet. A significant decrease in anxiety and depression symptoms along with significant improvement in psychological well being, self

control, general health, vitality and satisfaction with life in patients suffering from anxiety disorders with mild and moderate categories was observed which indicated that yoga therapy with meditation is significantly effective on quality-of-life and psychological well being in anxiety disorders. Jadhav and Havalappanavar (2009) investigated the effect of yoga based intervention on well-being and anxiety of 50 participants who were first year students from Naturopathy and Yogic Sciences Course. Yoga intervention proved to be effective in decreasing the anxiety symptoms and at the same time bringing a positive change in their subjective well-being.

Well-being in context of spirituality was explored by Kashdan and Nezlek (2012). The authors studied 87 participants for a total of 1239 days. The participants were required to provide a daily report of their spiritual activities and well-being. The authors found correlation of daily spirituality with positive affect, meaning in life and self-esteem. Meaning in life mediated between daily spirituality and self-esteem as well as positive affect. Moreover, within-person relationships between daily spirituality and self-esteem and meaning in life were stronger for people higher in trait spirituality.

The Mindfulness Based Stress Reduction (MBSR) is a program for increasing happiness and reducing negative emotions with the help of meditation (Kabat-Zinn, 1990). The MBSR has been successful in reducing stress and enhancing well-being (Baer, 2003; Bishop, 2002; Grossman, Niemann, Schmidt, & Walach, 2004).

2.2 Effect of meditation and related activities on psychological parameters

This section reviews studies on how meditation, spirituality, yoga and other mind-body complimentary therapies promote positive outcomes for psychological health of an individual. For example, in a recent study, the authors (Maddux, Daukantaite & Tellhed, 2018) explored the

efficacy of 8 weeks and 16 weeks gym yoga programs on stress levels and psychological health. Results indicated significant reductions in stress and improvement in psychological health for participants of yoga group in a period of 16 weeks. Yoga practitioners had significant decrease in stress, anxiety and significant increase in well-being in comparison to control group.

In a study on effects of meditation on psychological well-being, Kasai et al (2017) found that meditation mitigated depressive mood, anger, hostility, and fatigue while increasing vigor at the same time. After practicing meditation for more than a year, even psychological flexibility was enhanced. In another study, Tang, Tang and Posner (2016) highlighted how the various mind-body therapies like meditation show improvement in psychological parameters like stress, well-being and emotion regulation.

Heartfulness meditation has been found to have a positive effect on positive thinking as well as mental well-being and is helpful in controlling anxiety and bronchial asthma (Amarnath, Verma, Jenitha, Prasanthi & Elizabeth, 2017). In another study, Heartfulness meditation has been found to relieve anxiety and depression, improve positive thinking and produce a sense of well-being, contributing to a better response to treatment and optimal rehabilitation, thereby improving the symptoms of chronic obstructive pulmonary disease (COPD) (Amarnath, Verma, Jenitha, & Prasanthi, 2017). Cyclic Meditation practice has been found to reduce stress and improve psychosomatic health indices more effectively than supine rest in managers (Kushwah, Srinivasan, Nagendra, & Ilavarasu, 2016).

Munoz et al. (2016) evaluated the mindfulness meditation as an antecedent of reductions in stress and increase in hope. With a sample size of 46 participants, the authors equally divided them into a meditation group and a control group. Higher hope and lower stress was observed for the meditation group as compared to the control group. The authors further established that

reduction in stress fully mediated the relationship between mindfulness meditation and increase in hope. Mindfulness meditation programs have shown small improvements in anxiety, depression pain and stress/distress (Goyal et al., 2014). In another study, Soka Gakkai, a Buddhist practice (Soka Gakkai International) has been found to be very effective on well-being and some factors of positive psychology across the nations (Sachar, Singh & Khurana, 2013).

Tai Chi, a mind-body intervention, when combined with allopathic medication was found to be supportive in reduction of depressive symptoms with higher rates of depression remission (D'Silva, Poscablo, Habousha, Kogan, & Kligler, 2012). Safara, Bhatia, Singh and Dezhkam (2012) studied the comparison of effects of spiritual therapy and cognitive therapy on depression in a sample of 64 females in the age range of 18 to 45 years. Participants with higher depression scores were administered cognitive as well as spiritual therapy. Findings suggested spiritual therapy as more effective than cognitive therapy.

In a yoga based intervention program, a positive outcome for subjective well-being and significant improvement in five facets of personality was reported. This was along with a significant reduction found for state and trait anxiety levels in participants (Yadav, Magan, Mehta, Mehta & Mahapatra, 2012). Six months of regular yoga practice was found to reduce stress, depression and anxiety, and improve performance during a recognition memory task. Yoga practice also reduced salivary cortisol, a physiological parameter indicative of stress levels (Rocha et al., 2012). Zope and Zope (2013) reviewed literature on yogic breathing technique - Sudarshan Kriya Yoga (SKY) and its positive effects on physiological, psychological and stress related disorders. SKY was not only found to be a low risk and low cost therapy, but also a highly beneficial option for treatment related to stress, anxiety, depression, post-traumatic stress disorder (PTSD), substance abuse, stress-related medical illnesses, and rehabilitation of criminal

offenders. In another study, Bhavani, Varma, Sekhar, Latha, & Raju (2016) explored the efficacy of SKY on 60 Indian engineering students facing problems ranging from-stage fright, lack of concentration, lack of communication, sleep disorders etc. Significant lowering of stage fright, along with improvement in concentration, communication, relationships and better sleep quality were observed.

During a review to study effects of mindfulness on psychological health, it was found that mindfulness increased subjective well-being, reduced psychological symptoms and emotional reactivity, and at the same time improved behavioral regulation (Keng, Smoski & Robins, 2011). Interesting findings were put forth by Sedaghat, Mohammadi, Alizadeh and Imani (2011) in a study to find the efficacy of MBSR on the enhancement of mindfulness, psychological and emotional well-being and reduction of stress in an Iranian sample. The results of the eight week program revealed that while MBSR decreased stress, it didn't cause any significant change in mindfulness, psychological well-being and emotional well-being.

Stankovic (2011) examined the efficacy of Integrative Restoration (iRest) yoga Nidra, a form of mindfulness meditation on 16 male combat veterans suffering from PTSD. The study revealed reduced rage, emotional reactivity and anxiety. It also had a positive effect on feelings of self-awareness, relaxation, peace, and self-efficacy, in spite of facing challenges with mental focus, intrusive memories, and other concerns.

In a study on women participants (37-55 years) with depressive mood and no prior meditation experience, Lee and Bang (2010) observed that participants in the mindfulness and self-compassion group program appeared to have enhanced psychological well-being and improved psychological distress. The intervention consisted of eight sessions of 2.5 hours each (once a week), drawn on the principles of Mindfulness Based Cognitive Therapy (MBCT). In

another study, brief mindfulness meditation training was found to be effective in increasing mindfulness skills, reducing negative mood, significant reduction of fatigue and significant decrease in depression scores (Zeidan, Johnson, Diamond, David & Goolkasian, 2010). During measurements of meditation experience and emotional responses to pain, Brown & Jones (2010) found that meditation reduces the anticipation and negative appraisal of pain.

2.3 Effect of meditation and related activities on physiological parameters

Meditation has been found to improve mental and physical health (Kabat-Zinn, 1994). Empirical studies have confirmed that meditation can indeed foster beneficial psychological and physiological states (Davidson et al., 2003). For example, meditation has been hailed as an effective tool in addressing several physical health problems such as blood pressure and hypertension (Marchiori et al., 2015; Khobragade, Khobragade & Abbas, 2016 ; Ooi, Giovino, & Pak, 2017), sleep disturbances (Black et al., 2015; Ong et al., 2014), chronic pains (Cour & Peterson, 2015; Hilton et al., 2016) etc.

During a study on benefits of mediation on physical body, Wijk, Ackerman & Wijk (2005) found that human photon emission can be influenced by meditation. Data from time series recordings suggested that this non-invasive tool for monitoring radical reactions during meditation is useful to characterize the effect of meditation. The authors recorded and analyzed the ultra-weak photon emission (UPE, bio-photon emission) in 5 subjects in which the photon emission was found to reduce during meditation. UPE is a constituent of the metabolic processes in a living system. The participants meditated in sitting or supine positions in a darkroom utilizing a photomultiplier designed for manipulation in three directions.

In a study highlighting the effect of yoga on physical body, Cowen and Adams (2005) evaluated muscular endurance in 26 participants following six weeks of either *hatha* or *ashtanga* yoga practice. After training twice per week for six weeks, both groups showed significant improvements in trunk muscular endurance, with the *ashtang* group showing improvements in upper body muscular endurance and diastolic blood pressure also. Additionally, in the two categories in which both groups had significant improvements, the *ashtanga* group showed greater improvements than the *hatha* group.

During a study on engineering students, it was observed that the total cholesterol (TC), triglycerides (TGL) and VLDL of the students increased due to stress of the impending examination. After three and six weeks practice of *Sudarshan Kriya* and *Pranayama*, a decrease in levels of TC, TGL and VLDL was noticed (Subramanian, Elango, Malligarjunan, Kochupillai, & Dayalan, 2012). In another study by Ghiya and Lee (2012), it was reported that both Alternate Nostril Breathing (ANB) and Paced Breathing (PB) enhance autonomic modulation of the heart without shifting autonomic balance. Breathing rates mediate the autonomic changes due to ANB among individuals without previous experience of yogic breathing.

A study on body-scan mindfulness meditation training showed that body-scan meditation reduces the misperception of physical symptoms among individuals with medically unexplained symptoms (Mirams, Poliakoff, Brown & Lloyd, 2013). Investigating the effect of transcendental meditation (TM) for prevention and treatment of cardiovascular disease and patho-physiological mechanisms (Schneider & Carr, 2014), it was reported that TM has a positive impact on patho-physiological mechanisms of cardiovascular disease (CVD), risk factors for CVD including hypertension, psychosocial stress, smoking, surrogate markers for CVD and CVD clinical events.

Highlighting the benefits of yoga on physical health, Bhavanani, Ramanathan, Balaji and Pushpa (2014) revealed that cardiovascular recovery after the performance of *asanas* is greater as compared to *Shavasana*. Cardiovascular response to various *asanas* in the study showed that post postural heart rate and blood pressure fell below the initial values during the recovery period and this was consequently seen to be even lower than the response to relaxation in *Shavasana*.

Mooventhan and Khode (2014) reported on the efficacy of *Bhramari pranayama* and *OM* chanting in improving the pulmonary function in healthy individuals. The intervention required the study group of 41 participants to practice *Bhramari pranayama* and *OM* chanting for 10 min per day for 2 weeks. Control group of equal number of participants did not follow the practices. Post intervention scores revealed a significant improvement in peak expiratory flow, forced expiratory flow and maximal voluntary ventilation along with a significant reduction in weight in study group compared with control group. The authors further concluded that *Bhramari pranayama* and *OM* chanting are effective in improving pulmonary function in healthy individuals.

Medina et al. (2017) reviewed the related literature on role of mindfulness based interventions in diabetes. The authors concluded that mindfulness based interventions in diabetes, serve as preventive and complementary interventions, particularly for the relief of symptoms related to depression and anxiety in diabetic patients. It is also helpful in the management of other factors, including mindful eating, physical exercises and treatment adherence. Phatak, Chawla and Phatak (2017) studied the effect of raja yoga meditation on glycaemic status of individuals suffering from type 2 diabetes mellitus (T2DM). The authors recruited 60 patients in two groups. Group 1 consisted of 30 T2DM patients practicing Raja yoga meditation for more than five years. Group 2 consisted of 30 patients suffering from T2DM but

not practicing any form of yogic meditation. Results revealed a better glycemic control along with significantly lower blood glucose level and glycated hemoglobin levels in T2DM patients practicing Raja yoga meditation.

In an interesting study, Gaaney, Himathongkam, Tanaka and Suksom (2016) looked into the effects of Buddhist walking meditation and traditional walking on glycemic control and vascular function in 23 patients with T2DM. While, the two groups (Buddhist walking meditation and traditional walking) walked on the treadmill at exercise intensity of 50–70% maximum heart rate for 30 min/session, 3 times/week, the Buddhist meditation walking group performed walking on the treadmill while concentrated on foot stepping by voiced “Budd” and “Dha” with each foot step that contacted the floor to practice mindfulness while walking. After 12 weeks exercise program, the group practicing Buddhist walking meditation produced a multitude of favorable effects as compared to the group practicing traditional walking.

2.4 Effect of meditation and related activities on HRV

According to Hegde, Hegde and Satyanarayana (2012), “HRV is defined in terms of how different the length of time between each heart beat is. The greater the difference in times between heart beats, the healthier is the heart thought to be. Individuals may be able to learn to increase their own HRV and become healthier by a daily meditation practice” (p. 545).

Increased parasympathetic along with reduced sympathetic nerve activity and increased overall HRV was reported for 27 middle aged healthy participants, while practicing Acem meditation for 20 min (Nesvold et al., 2012). Parasympathetic nervous system promotes the rest and digest response, promotes calming of the nerves, enhances digestion, whereas, sympathetic nervous system promotes a fight or flight response corresponding with arousal and energy generation. The authors further concluded that this type of nondirective meditation by the middle

aged may contribute towards a reduction of cardiovascular risk. Jaisri, Dayananda, Hegde, and Sundaram (2011) studied the HRV during meditation in 15 professional pranik healers. It was reported that the variance of the heart rate during meditation was significantly higher than before meditation for all subjects. These techniques are believed to stabilize the autonomic nervous system by modulating the parasympathetic nervous system and in turn improving HRV.

Hailing HRV a psychophysiological marker of mental and physical health, Krygier et al. (2013) investigated the impact of intense Vipassana meditation on HRV. HRV of 36 participants was noted before and after they completed a 10-day intensive Vipassana retreat. Significant increase in well-being and decrease in ill-being was noted post Vipassana retreat. In another study, Agarwal and Wadhvani (2013) reported better HRV parameters in meditative state as compared to a non-meditative state.

Krishna et al (2014) examined the effects of a 12 week yoga therapy on various parameters like blood pressure, heart rate, HRV, and rate pressure product (RPP). A total of 130 heart failure patients were recruited for the study, out of which 65 formed the experimental group (yoga group) which received a 12 week yoga therapy coupled with standard medical therapy. Remaining 65 patients formed the control group which underwent the standard medical therapy only. Yoga group showed a significant decrease in heart rate, blood pressure and RPP as compared to control group. Parasympathetic activity was significantly improved with yoga therapy for twelve weeks and sympathetic activity decreased significantly.

In another similar study, Pal et al (2014) investigated the effect of short-term practice of relaxation therapy on autonomic functions and cardiovascular functions. Sixty seven medical students were recruited, who were divided into two groups, a study group of 35 and a control group of 32. The study group practiced relaxation therapy daily for 1 hour for the period of 6

weeks. Findings revealed a significant reduction in heart rate, systolic blood pressure, diastolic blood pressure and rate pressure product whereas there was improvement in HRV indices.

Rai, Kattimani, Rai and Chandak (2016) examined HRV in *Sahaj* yoga meditators during meditation and rest. A total of 20 participants in the age range of 25 to 40 years, who were practicing *Sahaj* yoga meditation (SYM) regularly for 5 years or more were recruited for the study. The HRV was recorded during rest with eyes closed and 15 minutes of SYM in a quiet room. An overall increase in HRV indicating a better autonomic status was noticed. Further, a lower LF (lower frequency)/ HF (higher frequency) in *Sahaj* yoga group indicated a robust sympathovagal balance in yoga subjects. Also, higher levels of HF recorded in the yoga group indicated a relaxed state of mind and body in *Sahaj* yoga practitioners. A similar study done in the past by Yunati, Deshpande and Yuwanate (2014) documented the HRV parameters of healthy participants before and after practice of SYM. The subjects practiced SYM for three months before evaluation of HRV parameters. The mean heart rate decreased significantly after 3 months of meditation. There was significant increase in the HF after meditation practice. The LF/HF ratio decreased significantly after meditation. The authors recommended a daily practice of SYM for prevention of risk of cardiac autonomic dysfunction with increasing age.

In a comparative study in the efficacy of Chinese-Chi and Kundalini yoga, the authors (Dey et al., 2016) documented that Chi- meditation had greater impact on HRV as compared to Kundalini yoga. I-Hua et al (2017) studied the effects of a 12-week yoga program on HRV and depressive symptoms in depressed women. Participants were 26 women scoring more than or equal to 14 on Beck Depression Inventory-II. Two groups were formed, yoga group which completed 12-week yoga program and a control group which did not engage in yoga practice. The yoga program which consisted of breathing exercises, yoga pose practice, and supine

meditation/ relaxation, took place twice a week for 60 min per session. The HF HRV of the yoga group increased significantly while LF HRV and LF/HF ratio increased after the intervention. The yoga group also reported significantly reduced depressive symptoms and perceived stress. No change was found in the control group. The authors hence, concluded that regular yoga practice may be recommended for women to cope with their depressive symptoms and stress and to improve their HRV.

A recent Indian study (Vasanthan, Madanmohan, Bhavanani, Hanifah, & Jaiganesh, 2017) looked into the cardiovascular relaxation and harmonization of the cardiac autonomic tone through aspects of yoga such as *asana* and *pranayama*. A total of 109 healthy participants were randomly divided into *asana*, *pranayama* and wait-listed group. Yoga training was given 25 min/day for 6 days/week for 6 months, in which *pranayama* group received relaxing *pranayama*, *asana* group received relaxing *asans* and third group was wait list control group. The results revealed that the relaxing *pranayama* and *asans* significantly decreased the resting heart rate and pulse pressure, systolic blood pressure and diastolic blood pressure as compared with control. There was however no significant difference in *asans* and *pranayama* groups.

Efficacy of *Vipassana* meditation on cardio autonomic dynamicity across sleep cycles during sleep was evaluated by Nagendra et al. (2017) on 26 senior *Vipassana* meditation practitioners and 23 non-meditating controls. *Vipassana* meditators showed significantly high HFnu (normalized unit of power in high frequency band) irrespective of sleep states across sleep cycles. The authors concluded that *Vipassana* meditation practice helps to establish a proper cardio autonomic dynamicity during sleep with a persistent increase in parasympathetic activity across sleep states.

2.5 Need for study, objectives and hypothesis

India has always been reckoned as the land of meditation, spirituality, yoga and other complementary mind-body therapies. Efficacy of these has already been highlighted by plethora of researches conducted across nations. India at present is on its way to become a global power and understandably so the fabric of the Indian society is witnessing a lot of changes. In such a scenario, stress is inevitable and due to this a lot more Indians are turning inwards and practicing meditation, spirituality and yoga etc. on daily basis as a way of finding inner peace and balance. Significance of spirituality in today's times has been well explained by Grant and Oman (2018), who say "religion and spirituality have global relevance. Public health and religious communities worldwide share similar goals and often similar capacities. Both are widely viewed as social institutions that foster the collective good; both public health and religion offer powerful tools for expanding and refining medically-based health efforts, perhaps most prominently by creating and sustaining community efforts across groups and societies" (p. 448). Spirituality, though a concept rooted in Indian tradition has now followers all over world and perhaps is also one of the most researched subject in today's times. While there are many organizations running popular meditation/spirituality based programs, comprehensive studies on these programs and practices of organizations running full day programs are rare. There are many Indian organizations like Art of Living, Brahma Kumaris, *Vipassana* and *Sahaj Marg* which are very popular nationally and internationally. Effect of programs of these organizations on mental and physical health, needs to be studied to scientifically encourage people towards meditation based programs for improving their mental and physical health. Further, there is also a need to study the new programs and techniques and motivate researchers to add unexplored areas of spiritual practices in their field of research. As Heartfulness spiritual practice based programs have not been

studied, two such programs, one at CREST, Bengaluru and the other at the Himalayan ashram of *Sahaj Marg* were identified for first two studies.

While the positive effect of meditation has long been felt by its practitioners, systematic studies are also required to demonstrate measurable effects on cardiovascular health apart from overall well-being. In this connection, HRV has been recently used extensively for studying the effect of meditation (Choi, et al., 2017; Quintana, Alvares, & Heathers, 2016; Yuen & Sander, 2017). There is evidence that Qi Gōng, a Buddhist practice improves HRV, a psycho-physiological parameter of heart health (Ramos, França, Nobre, & Santana, 2017). However, there are no studies on effect of Heartfulness/*Sahaj Marg* meditation related processes like cleaning and meditation using HRV. To fill this gap the third study was planned on Effect of Heartfulness cleaning and meditation using HRV. Through these studies, we aimed to achieve these broad objectives:

- i) To examine the effect of Heartfulness/*Sahaj Marg* spiritual practice based programs on mental and physiological health indicators.
- ii) To understand Heartfulness/*Sahaj Marg* meditation processes like cleaning and meditation using HRV, participant feedback and other physiological indicators.

Based on the review of literature, the following hypotheses were framed:

- i) Selected Heartfulness/*Sahaj Marg* spiritual practice based program at CREST Bengaluru will have significant positive effect on mental health indicators and selected physiological indicators.

- ii) Selected Heartfulness/*Sahaj Marg* spiritual practice based program at Himalayan Ashram will have a significant positive effect on mental health indicators and selected physiological indicators.
- iii) During cleaning and meditation processes of Heartfulness/*Sahaj Marg*, the effect on HRV based parameters will be significantly different from baseline data.

Details of the three studies are given in next three chapters.

Chapter 3: Study I – Heartfulness Program at CREST, Bengaluru

Title of the Study: Effect of Heartfulness Spiritual Practice Based Program at CREST, Bengaluru on Mental and Physiological Health Indicators

There have been many studies on effect of meditation and other spiritual practices on mental and physiological health, however, most of these studies have mainly focused on short duration meditation practice and there is no study on Heartfulness spiritual practice based program. Meditation based programs have their own characteristic as they comprise of a large number of activities affecting mind, body and heart in different ways. The meditation carried out during the program has a calming effect on the mind and regulates the mind throughout the day. This effect of meditation has the potential to improve the individual effect of all other activities which in turn can positively affect the whole program and its influence. It is therefore all the more important to examine the meditation based programs, giving training, education, social activities etc.

In this study, effect of Heartfulness spiritual practice based program run at CREST, Bengaluru, India has been studied. Various parameters related to mental health and a few parameters related to physiological health have been taken for the study. Additionally, interview schedule was used to capture participants' attitude towards the practice.

3.1 Research Methodology

3.1.1. Participants

All the candidates attending the five day program at CREST, Bengaluru were informed about this study before the start of the program. It was also explained to them that their participation would not entitle any remuneration and was purely subject to their willingness. A

total of 31 individuals (19 males, 12 females; age range 21-70 years, mean age = 49.7 years & SD = 15.2 years) participated in the study.

Among the participants, 24 were married whereas seven were unmarried. With regards to their education, 13 participants were post graduates, 12 were graduates, one was PhD and five participants were educated only upto school level. The group consisted of 12 retired persons, four homemakers, three teachers, two engineers, one chartered accountant, one veterinary doctor, one program manager, one store incharge and two participants chose not to report their occupation. All participants were practitioners of Heartfulness and registered voluntarily for the full time 5 day program at the center.

3.1.2. Procedure

The Data was collected at the beginning and end of the five day program. Participants arrived on first day of the program and stayed for the full duration in the center. They departed on last day, without going out even once. Daily schedule comprised of various activities like morning meditation, evening cleaning, night prayer, lectures, group discussions, voluntary work etc. Detailed schedule is given in Table – 2.

For this study it was decided to use bilingual questionnaire booklets which are in English, supplemented with Hindi, in order to cater to the linguistic proficiency of participants. All the participants were conversant with English, however, to facilitate comprehension, it was considered better to use bilingual material after discussion with Heartfulness authorities. Moreover usage of bilingual medium of instruction is a common practice in Indian education system (Khanna & Singh, 2016). The questionnaire booklet used in the study is given as Appendix 1.

Table 2*Daily routine of participants during the CREST program*

Schedule/ Activity	Details
04:30 am- Wake-up	A morning bell used to be rung
04:45 am (for about 40 mins.)- Individual meditation	Every Participant was supposed to do heartfulness meditation himself in his/her room after silently doing prayer once. The instructions for meditation were, “Sit in comfortable position. Give a gentle suggestion to yourself -Divine light is in my heart. Ignore the thoughts like clouds going in the sky. Give the suggestion again if the thoughts persist”.
05:45 am- Tea break	
06:00 am (for about 60 mins.)- Exercise/ walking	Combination of light aerobic exercises and stretching, followed by two rounds of walking in the campus.
07:30 am (for about 50 mins.)- Satsang-Group Meditation	In the meditation hall. Conducted by meditation trainer/ preceptor. All participants attended. When trainer says “Please start meditation” Participants give a gentle suggestion of divine light. In the end trainer says “That’s all”. Trainer uses his thought process to give yogic transmission as per procedure.
08:30 am- Breakfast	Simple vegetarian (<i>Satvik</i> food) breakfast
09:00 am (for 2	First Day Plenary session: <i>Guru Vandana</i> , Introduction by director,

hrs)- Lecture session on topics like time management	familiarization by officials. Introduction of study by investigator. 2 nd 3 rd and 4 th day: Lecture on different topics of Time Management like Eternal time concept, Cyclic time. Managing our time during a day. Concept of time as per ancient texts, Gap between what I am supposed to do and what I am doing, Space and time, beyond time, Big Bang etc. Fifth Day Concluding Session: Closing remarks by director, Feedback, Group photo, certificate distribution, Views sharing by participants.
	11:00 am- Tea break
11:15 am (for 75 mins.)	Morning lecture continued---
12:30 pm- Lunch	Simple vegetarian lunch (<i>Satvik</i> food) with lot of green vegetables.
01:30 pm- Library/ rest	Library has more than 5000 books covering various religions, spiritual thoughts, modern science etc. Participants also had the option to rest in their dorms.
02:30 pm (for 75 mins.)- Group discussion in small groups	Participants were divided in 5 groups. They discussed the topics of lectures in different ways. In one round they explained what they understood. In another they discussed three salient points. In another round they discussed similar things from other authentic sources.
	03:45 pm – Tea break
04:00 pm (for 60	Voluntary work was levelling a road, taking care of plants.

mins.)-Voluntary work	Cleaning the plant produce. It was done in teams and as per individual capacity.
05:15 pm (for 30 mins.)- Individual cleaning (part of meditation practice)	Individual cleaning is an active process in which “will power” is used. Participant gives a thought of grossness, impurities and impressions leaving from the back side. After sometime he imagines that divine light is being filled from front. At the end he gives a thought that he is clean.
06:00 pm (For 90 mins.)- Circle Time (general discussion in a group)	All participants and lecturers would sit in a circle in Master’s cottage and generally discuss any topic related to spirituality. Participants were free to give their opinion. Session was coordinated by lecturer of the day.
07:30 pm- Dinner	Simple vegetarian food (<i>Satvik</i> food) having rice, pulses, vegetables etc.
08:00 pm (For 60 mins.)- Listening to spiritual DVD/ divine messages	Different DVDs on different days. One day it was of Swami Vivekananda another day discussion of Lord Krishna and Narada Muni on <i>Maya</i> a documentary based on ancient Indian texts produced by Chinmaya mission. Other two days divine messages called “Whispers from the brighter world” were read and their special reading technique was taught.
09:00 pm (For 15 mins.)- Universal prayer followed by	Instructions for universal prayer are as follows: "At 9:00 P.M. sharp every <i>abhyasi</i> (practitioner), wherever he or she might happen to be at the time, should stop his or her work and meditate for fifteen

library time	minutes, thinking that all brothers and sisters are being filled up with love and devotion and that real faith is growing stronger in them."
10:00 pm- Lights off and prayer meditation	Lights are switched off and participants are advised to sleep after doing prayer meditation for 10 minutes as the last thing in the day. Prayer and its meaning is given in section 1.8.3 above.

3.1.3. Tests used

A booklet for data collection was prepared containing consent form, demographical information, semi-structured interview, psychological tests and record of physiological measures. First of all, the study was introduced and informed consent of participants were taken. Following psychological tests were included in the data collection booklet.

3.1.3.1. Mental Health Continuum Short Form (MHC – SF)

MHC – SF (Keyes, 2005) is a 14 items scale in which three items represent emotional well-being, six items represent psychological well-being, and five represent social well-being. Items are rated on a 6-point Likert scale (never to every day). The internal reliability for total MHC ($\alpha=0.89$) and for its dimensions like emotional well-being ($\alpha=0.83$), for psychological well-being ($\alpha=0.83$) and for social well-being ($\alpha=0.74$) were reported satisfactory (Lamers, Westerhof, Bohlmeijer, Klooster & Keyes, 2011). In Indian setting an overall test consistency of $\alpha=0.88$, ranging from $\alpha=0.75$ to 0.84 for the three aspects of well-being has been reported (Khanna, Singh, Singla & Verma, 2013). In another study on Indian population, acceptable reliability for EWB ($\alpha=0.82$), SWB ($\alpha=0.79$) and PWB ($\alpha=0.83$) have been reported (Singh, 2014).

3.1.3.2. Scale of Positive and Negative Experience (SPANE)

SPANE (Diener et al., 2010) has 12 items which are rated on 5 point Likert type scale. Feelings like good, pleasant, happy, joyful, contented, bad, unpleasant, sad, afraid and angry are measured on a scale of 1-5 [from Very Rarely or Never (1) to Very Often or Always (5)]. The scale derived positive feelings score (SPANE-P, $\alpha = .87$) and negative feelings score (SPANE-N, $\alpha = .81$) and an overall affect balance score (SPANE-B, $\alpha = .89$) which is the difference between positive score and negative score. In a study on Indian population, Cronbach's coefficient for SPANE-P ($\alpha = .81$) and for SPANE-N ($\alpha = .77$) were found to be acceptable (Singh, 2014).

3.1.3.3. Flourishing Scale (FS)

FS (Diener et al., 2010) is a Likert type rating scale, 1 denoting strongly agree and 7 indicating strongly disagree. The responses are added, varying from 1 to 7, for all eight items. The possible range of scores is from 8 (lowest possible) to 56 (highest possible). A very good Cronbach's alpha ($\alpha = .87$) was reported by Diener, et al., (2010). In a study on Indian population, Confirmatory Factor Analysis (CFA) results were found to be acceptable, having an excellent value of Cronbach coefficient ($\alpha = .93$) (Singh, 2014).

3.1.3.4. Sat-Chit-Ananda scale

Sat-Chit-Ananda scale (Singh et al., 2013) has seventeen items, having four factors with acceptable psychometric properties, namely: 1. *Chit*- Consciousness ($\alpha = 0.76$), 2. *Antah Shakti*- Inner Strength ($\alpha = .76$), *Sat*- Truthfulness ($\alpha = .69$) and *Ananda*- Blissfulness ($\alpha = .64$) and overall Sat-Chit-Ananda scale ($\alpha = .82$). Recently, the scale has been revalidated by using both exploratory and confirmatory factor analyses. Sat-Chit-Ananda and its factors were found to be significantly positively correlated with Flourishing and Positive Experiences and were negatively

correlated with Negative Experiences which strengthen its validation (Singh, Khanna, Khosla, Rapelly & Soni, 2016). Total Sat-Chit-Ananda score has been used in this study.

3.1.3.5. Mindful Attention Awareness Scale (MAAS)

The MAAS (Brown & Ryan, 2003) is a 15-item scale designed to assess a core characteristic of mindfulness, namely a receptive state of mind in which attention, informed by a sensitive awareness of what is occurring in the present, simply observes what is taking place. Internal consistency is good with alpha ranging from .80 to .90 (Brown & Ryan, 2003).

3.1.3.6. Depression, Anxiety and Stress Scale (DASS 21)

The DASS 21 (Lovibond & Lovibond, 1995) is a set of three self-report scales designed to measure the negative emotional states of depression, anxiety and stress. The DASS 21 was constructed not merely as another set of scale to measure conventionally defined emotional states, but to further the process of defining, understanding and measuring the ubiquitous and clinically significant emotional states usually described as depression, anxiety and stress. Each of the three DASS 21 scales contains 7 items. Total score for Depression, Anxiety and Stress are calculated by summing the factor's respective items. Internal consistency was reported good ranging $\alpha = 0.96, 0.89$ and 0.93 for Depression, Anxiety and Stress respectively (Brown, Chorpita, Korotitsch & Barlow 1997). The Cronbach alpha for Stress ($\alpha = 0.71$), Depression ($\alpha = 0.76$); and Anxiety ($\alpha = 0.73$) were also found acceptable on Indian sample (Singh, Junnarkar & Sharma, 2015).

3.1.4. Physical Health Parameters for study

Physical Health parameters, blood Pressure and heart rate were measured in the beginning and end of the program. Blood Pressure and heart rate were determined using commercially available automatic blood pressure monitor of brand–Omron model SEM-1 (HEM-

7051-C12). Each person was asked to take rest for 5 minutes and then the measurement was taken. Weight of participants was also measured before and after the program as a physical parameter, just to see if there is any significant change. The machine used was a digital weighing machine of brand Equinox model EB9021. Height of participants was also recorded for the purpose of calculation of BMI in case there was any significant change in weight.

3.1.5. Semi structured interview

The semi-structured interview schedule was provided at the end of the program to all the participants. The interview schedule consisted of seven open ended questions like why have you come for this program, how long have you been practicing *Sahaj Marg*, how regular you are in your practice, how much improvement you feel in your spiritual condition during this program, which activities you liked most in this program, which activities you did not like in this program and anything else you want to include additionally.

3.1.6. Data analysis

Statistical analysis was carried out using SPSS version 16. Paired t-test was used to study the effect of spiritual practice based program by comparing scores after the program with baseline at the start of the program.

3.2. Results

Results section has been divided in to following three sub-sections: Mental health indicators, physical health indicators and participants' perception about program through Semi Structured Interview.

3.2.1. Mental health indicators

The results from Table 3 indicate that pre and post test scores from the program differed significantly on MHC-SF ($t(29) = -5.30, p < .01$) and its factors like Emotional well-being ($t(29) = -4.18, p < .01$), social well-being ($t(29) = -5.22, p < .01$) and Psychological well-being ($t(29) = -2.34, p < .05$). The mean scores of the MHC-SF pre-test (M = 48.97; SD = 10.62) were significantly improved as compared to post-test (M = 56.80; SD = 8.54) and its all three dimensions had significantly higher (EWB = pre M = 11.63, SD = 2.06 & post M = 12.90, SD = 1.99; SWB = pre M = 14.87, SD = 5.85 & post M = 19.27, SD = 4.80 and PWB = pre (M = 22.47, SD = 5.14 & post M = 24.63, SD = 4.37) post sessions scores.

Table 3

Pre and post testing results for mental health related parameters in Study I

Factor	PRE- Testing		POST-Testing		N	t- values
	Mean	SD	Mean	SD		
MHC-SF (Emotional)	11.63	2.06	12.90	1.99	30	-4.18**
MHC-SF (Social)	14.87	5.85	19.27	4.80	30	-5.22**
MHC-SF (Psychological)	22.47	5.14	24.63	4.37	30	-2.34*
MHC-SF (Total)	48.97	10.62	56.80	8.54	30	-5.30**
SPANE-Positive	24.20	4.97	26.53	3.03	30	-2.74**
SPANE-Negative	14.00	4.07	11.80	4.62	30	3.13**
SPANE-Balance	10.20	7.48	14.73	6.85	30	-4.07**
Flourishing Scale	47.45	5.43	49.84	4.66	31	-2.98**
Sat-Chit-Ananda	71.77	8.27	76.32	6.67	31	-4.10**

MAAS	59.77	14.01	63.65	15.49	31	-1.95
DASS(Depression)	3.46	2.95	2.36	3.01	28	2.46*
DASS(Anxiety)	4.57	3.66	4.11	3.27	28	0.77
DASS (Stress)	5.89	4.25	4.75	3.20	28	1.97
DASS (Total)	13.93	9.59	11.21	8.23	28	1.98

Note: * Significant $p < .05$ ** significant $p < .01$. MHC-SF = Mental Health Continuum Short Form, SPANE= Scale of Positive and Negative Experiences, MAAS= Mindful Attention Awareness Scale, DASS= Depression, Anxiety and Stress Scale-21 item version.

There was a significant improvement in the scores for the flourishing, {pre sessions $M = 47.45$, $SD = 5.43$ and post sessions $M = 49.84$, $SD = 4.66$ }; $t(30) = -2.98$, $p < .01$; positive experience {pre sessions $M = 24.20$, $SD = 4.97$ and post sessions $M = 26.53$, $SD = 3.03$ }; $t(29) = -2.74$, $p < .01$ }; SPANE-B {pre sessions $M = 10.20$, $SD = 7.48$ and post sessions $M = 14.73$, $SD = 6.85$ }; $t(29) = -4.07$, $p < .01$ } and Sat-Chit-Ananda { pre sessions $M = 71.77$, $SD = 8.27$ and post sessions = $M = 76.32$, $SD = 6.67$ }; $t(30) = -4.10$, $p < .01$ }. Simultaneously, SPANE-N {pre sessions $M = 14.00$, $SD = 4.07$ and post sessions $M = 11.80$, $SD = 4.62$ }; $t(29) = 3.13$, $p < .05$ } and Depression {pre sessions $M = 3.46$, $SD = 2.95$ and post sessions $M = 2.36$, $SD = 3.01$ }; $t(27) = 2.46$, $p < .05$ } were reduced significantly in this study. However, there was no significant change in Mindfulness, Anxiety and Stress, (refer to Table 3).

3.2.2. Selected physical health indicators

Physiological measures (Blood Pressure and Heart Rate) and weight were also taken as dependent variables in the study to observe any change in them. There was no significant change in weight and blood pressure values. Mean of Heart Rate decreased significantly from 80.48 to

76.48 (Table 4) with all participants remaining in normal range (60-100) except one who had abnormally high heart rate of 115 in pre session which normalized to 100 in post session.

Table 4

Pre and post testing results for physical health related parameters in Study I

Factor	PRE- Testing		POST-Testing		N	t- values
	Mean	SD	Mean	SD		
Weight	71.20	11.28	71.04	11.40	31	1.43
Blood Pressure(systolic)	126.39	17.03	125.42	17.91	31	0.64
Blood Pressure(diastolic)	77.45	9.83	75.94	10.01	31	1.52
Heart Rate	80.48	11.74	76.48	9.92	31	3.40**

* Significant $p < .05$ ** significant $p < .01$

However, critical analysis of the blood pressure data as per the American Heart Association Standards shows that the number of participants in normal range (BP Systolic < 120 and BP Diastolic < 80) increased from 12 to 15 (Fig. 2). Also, the participants in Pre-hypertension stage (BP Systolic 120-139 or BP diastolic 80-89) decreased from 10 to 7. Moreover, the participants in High blood Pressure Stage 1 (BP Systolic 140-159 or BP diastolic 90-99) decreased from 8 to 7. However, participants in High Blood Pressure Stage 2 (BP Systolic > 160 or BP diastolic > 100) increased from 1 to 2.

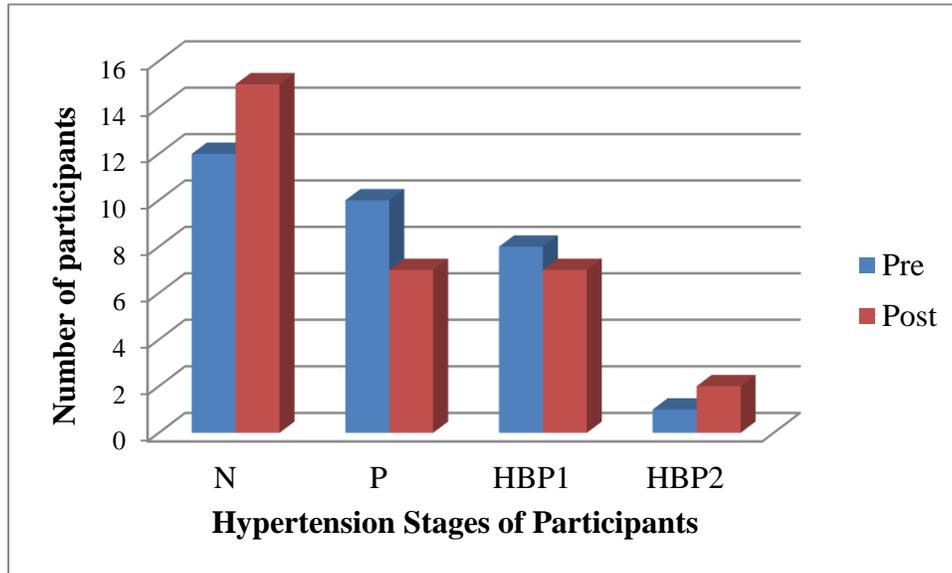


Figure 2. Number of participants in various stages of hypertension during Study I at CREST Bengaluru

N-Normal; P-Pre-hypertension; HBP1-High Blood Pressure Stage 1; HBP2-High Blood Pressure Stage 2

3.2.3. Semi structured interview outcome

At the end of the program semi structured interview was conducted to assess the impact of the program with open ended questions. Content analysis was done to analyze the responses.

Q1 Why have you come for this program?

Thirteen participants replied that they have come to improve their spiritual practice, achieve spiritual progress, to understand how to be a better *Abhyasi* (practitioner) and also to understand *Sahaj Marg* better. One participant replied that he has come to utilize the excellent atmosphere of CREST whereas two of them wanted to increase their dedication towards Master and *Sahaj Marg*. One participant replied that he wants to attain life objectives while six participants wanted to learn time management. One participant had very good experience at CREST earlier and wanted to adjust his meditation practice again while another participant came

for *Sadhna* (meditation Practice) and self-introspection. A young participant came for character transformation and to change himself.

Q2 How long have you been practicing Sahaj Marg?

Experiences of participants spanned over a very wide range with eight participants having experience up to five years and another eight having experience of more than 20 years (Fig. 3). Six participants were in the range of five to ten years whereas seven were in the range of ten to twenty years. When asked to elaborate, one reported missing some elements of practice like bed time prayer and one not being regular in practice. One had read most of the *Sahaj Marg* literature. Seven participants described about how they joined *Sahaj Marg* and doing their practice.

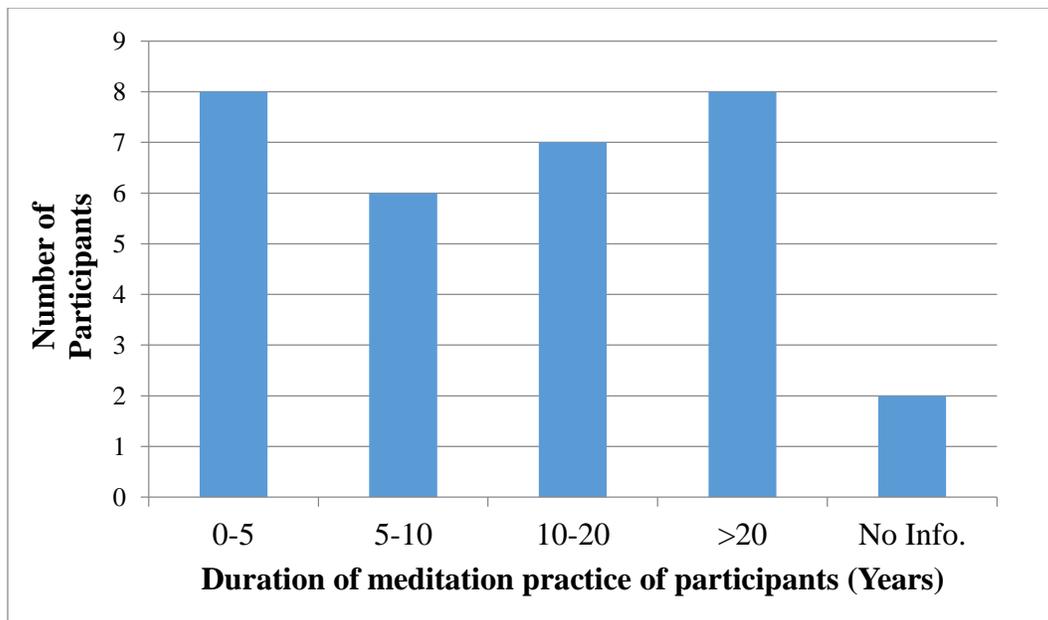


Figure 3. Feedback recorded during Study I at CREST Bengaluru on participants' duration of meditation practice

Q3 How regular you are in your practice? (Rate between 1- seldom to 5- Regular)

When asked about the regularity of meditation practice on a scale of 1-5 (1- seldom, 5- regular), twelve of them reported the highest number 5 (Fig. 4). Eight of them reported 4 while

ten of them reported 3. None of them reported 1 or 2 whereas for one participant data was not available. When asked to elaborate, six participants reported that they were regular in the morning meditation but irregular in cleaning or bed time prayer. Five participants were regular at one time and irregular at other. Fourteen participants reported that they continued the practice regularly.

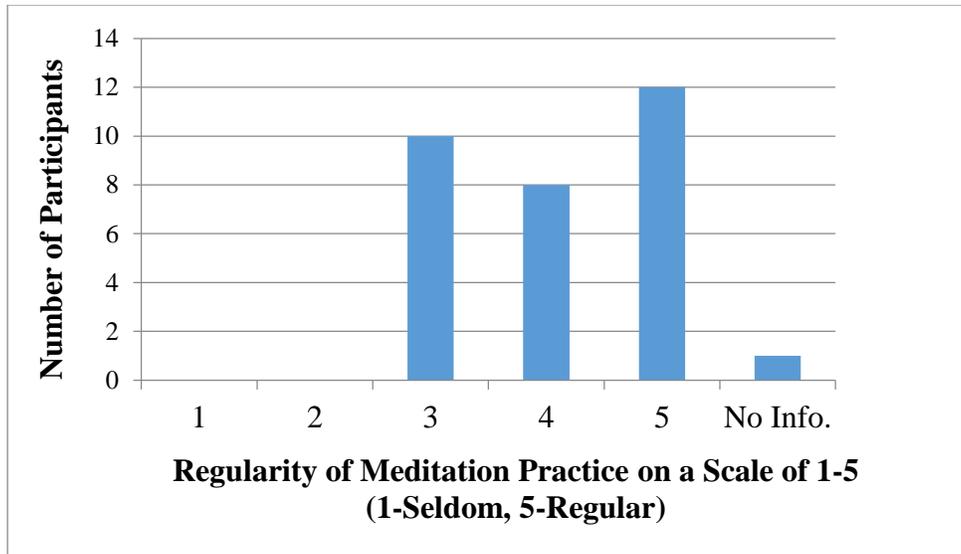


Figure 4. Feedback recorded during Study I at CREST Bengaluru on participants' regularity of meditation practice

Q4 How much improvement you feel in your spiritual condition during this program?

When asked about the improvement in spiritual condition during the program on a scale of 1-5 (1- Negligible, 5- Tremendous), seventeen of them reported the highest number 5 (Fig. 5). Ten of them reported 4 while one of them reported 3. None of them reported 1 or 2 whereas for three participants data was not available. When asked to elaborate, one participant reported feeling deep, calm and fully absorbed in meditation and remembrance of Master, one could notice spiritual progress whereas doubts were cleared for one participant. One participant reported improved understanding of Master, Mission and Method whereas one participant found the stay in CREST to be conducive for deepening the practice. One participant reported that he is

rising early which helps the practice, another reported feeling great because of practice, while one participant felt that meditation practice will improve after the stay in CREST.

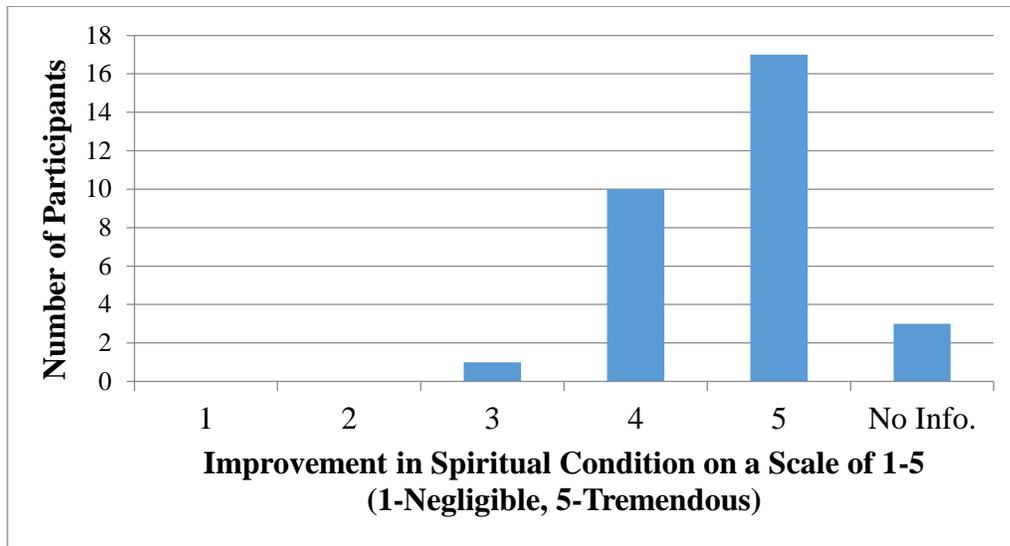


Figure 5. Participants’ perception on improvement in their spiritual condition during Study I at CREST Bengaluru

Q5 Which activities you liked most in the program?

Nine participants reported that they liked all the activities whereas thirteen participants replied that they liked lectures, ten participants liked circle time – all participants sitting in a circle and talking, whereas seven participants liked *Shramdan*- Volunteer Work. One participant reported meditation, whereas four enjoyed physical exercise as their most liked activities. Two participants also enjoyed getting up early and doing meditation.

Q6 Which activities you did not like in the program?

Twenty four out of thirty one participants reported that there is no activity which they did not like. One participant reported group discussion, one felt that video on Swami Vivekananda was not made properly, while one did not like scientific information being given. One participant reported that he did not like the chairs. Three participants did not answer the question.

Q7 Anything you want to say on your own?

Twenty seven participants answered the question giving very wide ranging answers such as wanting to become sensitive, too good progress, suggestion for scheduling of lectures, recommendation to others for joining the program, good opportunity, appreciation of CREST, well designed program, very educative program, desire to come back again etc.

3.4. Discussion

There was significant improvement after the sessions in measures of well-being such as Mental Health and its dimensions, Flourishing, Positive experiences, Sat-Chit-Ananda. Significant declination of Negative experiences and Depression leads to reduced ill-being in post sessions testing. However, mindfulness, anxiety and stress had insignificant changes. There is a lack of studies on *Sahaj Marg* programs but abundance of research is available on other such kind of programs. For instance, consistent to these findings, Singh, Jain and Singh (2014) observed that rural women participating in *Satsang* felt more empowered and free from stressors in India. Studies of practices associated with other religions in India such as Buddhism too have found evidence for benefits from religious and spiritual practices. A study of Soka Gakkai International's (SGI) Buddhist practice found that practitioners had significant higher scores on psychological well-being (PWB) and related factors (like well-being index, general psychological health, gratitude and wisdom) than the non-practitioners (Sachar, Singh & Khurana, 2011). In another study, Yoga based life style intervention programs are documented to cause a significant reduction in state and trait anxiety levels and had a favorable effect on subjective well-being even in short time period (Yadav, et al., 2012).

Krygier, et al., (2013) have also observed significant change in Depression while the changes in Anxiety were insignificant after practicing Mindfulness Meditation. It might happen because of low level of depression, anxiety and stress at the beginning of the program. This

could be attributed to the fact that majority of the participants were regular practitioners. Hence, the changes and significance value has to be seen in that light. However, contrary to present findings, Zeidan, Johnson, Diamond, David & Goolkasian (2010) found that anxiety scores dropped significantly after practicing Mindfulness Meditation. Mindfulness did not show significant change, which may be attributed to the process of Heartfulness meditation being different from mindfulness meditation.

Some improvement is noticed in selected physiological health indicators, although the change in Blood Pressure-Systolic and Blood Pressure-Diastolic values is insignificant. Nevertheless, Heart Rate values showed significant improvement. Contrary to present findings, several studies have shown effect of yoga and meditation sessions on physiological changes. For instance, breathing awareness meditation and life skills training program has been found to decrease Blood pressure systolic, Blood pressure diastolic and heart rate (Mathew, et al., 2011). Another study indicated that spirituality may have a positive effect on Blood pressure (Manshaee & Amini, 2013). Systolic and diastolic blood pressure in low income African-American older adults reduced by mindfulness based intervention program (Palta, et al., 2012). A six week yoga based program for employee population, induced notable improvements in diastolic blood pressure but change in systolic blood pressure was not statistically significant (Barbara, Siddiqi, Stephen, & Brent, 2011) in spite of the significant improvements in linear analog self-assessment (LASA) score. The above discussion indicates that improvement in some of the physiological parameters is in line with results reported in documented research.

The results obtained for mental health indicators and selected physical health indicators correlate very well with the results of semi-structured interview. Seventeen participants reported very high improvement (5/5) and ten reported high improvement (4/5) in their spiritual condition

after the program. This indicates that an overwhelming majority found a lot of improvement in spiritual condition, correlating well with the quantitative data of positive mental and physical health indicators. Another indication of participants feeling much better comes from the fact that they liked almost all the activities in the program. Only a very small number of participants did not like a few activities. When asked to say anything on their own, there was an overwhelming positive response which also indicates improvement in mental health parameters as seen in quantitative analysis. Aligning with present findings, positive attitude towards Spiritual practices is supported by other studies as well (Richardson et al., 2000).

Chapter 4: Study II – Heartfulness Program at Himalayan Ashram

Title of the Study: Impact of Five Days Spiritual Practice in Himalayan Ashram of Sahaj Marg on Well-Being Related Parameters and Selected Physiological Indicators

Study I at CREST Bengaluru was carried out to assess the impact of Heartfulness spiritual practice based program on well-being related parameters and physiological indicators. The program was a training program of Heartfulness which contained lectures on different subjects as well as activities like physical exercises, volunteer service, circle time etc. keeping the participants engaged throughout the day. After this study it was felt that other programs of Heartfulness with different schedule and nature of activities should also be examined to confirm the role played by meditation and other spiritual activities during the program. The stay at Himalayan *ashram* is much more relaxed in terms of schedule and activities, however, it is supposed to be more conducive for spiritual progress. Hence this study was designed using the same parameters as that of Study I.

In this study the impact of five days spiritual practice in Himalayan *ashram* of Heartfulness/*Sahaj Marg* on well-being related parameters and selected physiological indicators has been assessed. At the end of the program, semi-structured interview was conducted to collect responses based on personal experience to correlate with the results from quantitative data.

4.1. Research Methodology

4.1.1. Participants

All the candidates attending the 5 day program at Himalayan Ashram located at Satkhol were informed about this study before the start of the program. It was also explained to them that their participation would not entitle any remuneration and would be purely subject to their willingness. A Total of 55 participants (25 males, 30 females; age range 18-65 years; mean age

= 49 years & SD = 12.5 years) volunteered to participate in the study. The participants were practitioners of *Sahaj Marg* and were staying full time in the *ashram* during the five day program. All participants gave informed consent for the purpose of participating in the study.

Among the participants 46 were married, five were unmarried whereas four participants did not report their marital status. With regards to their educational qualification, 18 participants were post graduates, nine were graduates, one held Phd and 23 had attended school. The group had eight retired persons, 11 homemakers, five in teaching profession, nine in active service, three businessmen, two advocates, one psychologist and one labourer. Occupation details were not reported by 12 participants. All participants were practitioners of Heartfulness and registered voluntarily for the program.

4.1.2. Study Location

The study was carried out at the Himalayan Ashram located at Satkhol, District Nainital, Uttarakhand, India. The *ashram* is situated at an elevation of about 1900m. There is a clear view of majestic Himalayan range in its entire splendor. Food served to the participants is prepared from organic vegetables and fruits, grown in the *ashram*.

4.1.3 Daily Routine

Participants started their day by getting up at 4 a.m. and doing morning meditation and ended their day with prayer meditation. During the day, participants had morning group meditation, evening group meditation, evening thought process cleaning, going to library twice, voluntary work, golden silence, universal prayer and breakfast, lunch and dinner which consisted of simple vegetarian food prepared using vegetables grown in *ashram* compound.

4.1.4. Procedure followed

Data for the study was collected at the beginning and end of the five day program. The participants arrived on first day of the program and departed in the morning of sixth day. They stayed for the full duration in the *ashram* going out only once. Daily schedule comprised of various activities like morning meditation (1 hour), evening meditation (1 hour), evening cleaning (15-30 minutes duration mental process using will power, which is part of the spiritual practice), universal prayer (15 minutes), prayer meditation before going to bed (10 minutes), library time (2-3 hours), golden silence (30 min), voluntary work (1 hour) etc.

4.1.5. Psychological tests

Psychological tests MHC-SF, SPANE, FS, Sat-Chit-Ananda, MAAS and DASS 21 as used in Study I were used for this study as well. Questionnaire booklet containing psychological tests, demographic information etc. used for this study at Himalayan *ashram* was same as that used in Study I at CREST Bengaluru. The booklet is given as Appendix 1.

4.1.6. Physiological and physical health parameters for study

Blood pressure and heart rate were measured at beginning and end of the program as physiological parameters. Measurement of blood pressure and heart rate was carried out using commercially available automatic blood pressure monitor of brand–Omron model SEM-1(HEM-7051-C12). Each participant was asked to take rest for 5 minutes and then the measurement was taken.

4.1.7. Semi structured interview

Semi-structured interview was conducted with help of questionnaire comprising of seven questions. Participants were asked many questions e.g. why have you come for this program,

how long have you been doing *Sahaj Marg* practice, how regular you are in your practice, how much improvement you feel in your spiritual condition during this program, which activities you liked most in this program, which activities you did not like in this program and anything you want to say on your own.

4.1.8. Data analysis

Data was analyzed using SPSS version 16. Paired t-test was used to study the effect of spiritual practice based program as it was a pre-post study.

4.2. Results

4.2.1. Well-being related parameters

There was a significant difference in the scores for the MHC-SF (Total) in pre (M = 52.42, SD = 10.57) and post sessions (M = 57.12, SD = 9.39); $t(49) = 3.06$, $p < 0.01$. At component level also, there was a significant difference for emotional well-being scores {(Pre M = 11.72, SD = 2.86 and post sessions M = 13.04, SD = 2.38), $t(49) = 2.69$, $p < .01$ } and for social well-being scores {(pre M = 16.68, SD = 5.70 and post sessions M = 18.88, SD = 4.57), $t(49) = 3.24$, $p < .01$ }. Values of Sat-Chit-Ananda scale also improved significantly {(pre M = 73.43, SD = 9.48) and post sessions M = 76.02, SD = 6.89); $t(50) = 2.22$, $p < .05$ }.

Table 5*Paired t- test of pre and post sessions data for well-being related parameters in Study II*

Factor	Pre - Testing		Post -Testing		N	t - values
	Mean	SD	Mean	SD		
MHC-SF (Emotional)	11.72	2.86	13.04	2.38	50	-2.69**
MHC-SF (Social)	16.68	5.70	18.88	4.57	50	-3.24**
MHC-SF (Psychological)	24.02	4.86	25.20	4.34	50	-1.61
MHC-SF (Total)	52.42	10.57	57.12	9.39	50	-3.06**
SPANE-Positive	23.57	3.88	26.22	3.57	49	-5.03**
SPANE-Negative	13.33	3.33	10.92	3.51	49	5.16**
SPANE-Balance	10.24	5.84	15.31	6.57	49	-6.40**
Flourishing Scale	47.18	8.18	49.69	8.23	55	-1.94
Sat-Chit-Ananda	73.43	9.48	76.02	6.89	51	-2.22*
MAAS	66.74	15.72	71.20	15.54	50	-1.52
DASS(Depression)	4.57	4.81	3.27	4.26	49	2.75**
DASS(Anxiety)	4.76	4.47	3.61	4.08	49	2.24*
DASS (Stress)	5.82	4.40	4.00	4.38	49	3.01**
DASS (Total)	15.14	12.51	10.88	11.73	49	3.14**

Note: * Significant $p < .05$ ** significant $p < .01$. MHC-SF = Mental Health Continuum Short Form, SPANE= Scale of Positive and Negative Experiences, MAAS= Mindful Attention Awareness Scale, DASS= Depression, Anxiety and Stress Scale-21 item version.

In SPANE, Scores on positive feelings {(pre M = 23.57, SD = 3.88 and post sessions M = 26.22, SD = 3.57); $t(48) = 5.03, p < .01$ } and Balance scores {(pre (M = 10.24, SD = 5.84 and post sessions (M = 15.31, SD = 6.57); $t(48) = 6.40, p < .01$ } were increased significantly

whereas negative feelings {(pre M = 13.33, SD = 3.33 and post sessions M = 10.92, SD = 3.51); $t(48) = 5.16, p < .01$ }, Depression {(pre M = 4.57, SD = 4.81 and post sessions (M = 3.27, SD = 4.26); $t(48) = 2.75, p < .01$ }, Anxiety {(pre (M = 4.76, SD = 4.47 and post sessions (M = 3.61, SD = 4.08); $t(48) = 2.24, p < .05$)} and Stress {(pre (M = 5.82, SD = 4.40) and post sessions (M = 4.00, SD = 4.38); $t(48) = 3.01, p < .01$)} were decreased significantly. However, there was no significant changes in flourishing, psychological well-being and mindfulness in this study (see Table 5).

4.2.2. Physiological parameters

Physiological measures (Blood Pressure and Heart Rate) were taken as dependent variables in the study to observe any change in them. Blood Pressure (diastolic) {(pre (M= 85.31, SD = 11.79) and post sessions (M = 77.21, SD = 10.42); $t(41) = 5.50, p < .01$ } and heart Rate changed significantly} (pre (M=77.52, SD = 10.41) and post sessions (M = 86.12, SD = 9.58); $t(41) = 7.92, p < .01$). However, there was no significant change in blood pressure (systolic) values (see Table 6).

Table 6

Paired t- test of pre and post data for physical health related parameters in Study II

Factor	PRE- Testing		POST-Testing		N	t- values
	Mean	SD	Mean	SD		
Blood Pressure (systolic)	133.55	29.95	128.90	16.53	42	1.25
Blood Pressure (diastolic)	85.31	11.79	77.21	10.42	42	5.50**
Heart Rate	77.52	10.41	86.12	9.58	42	-7.92**

** Significant $p < .01$

However, when we critically analyze the blood pressure data as per the American Heart Association Standards, the number of participants in normal range (BP Systolic < 120 and BP Diastolic < 80) increased from 7 to 12 (Fig 6). Participants in Pre-hypertension stage (BP Systolic 120-139 or BP diastolic 80 – 89) increased from 15 to 19. Participants in High blood Pressure Stage 1 (BP Systolic 140-159 or BP diastolic 90 – 99) decreased from 11 to 9. Participants in High Blood Pressure Stage 2 (BP Systolic > 160 or BP diastolic > 100) decreased from 4 to 2. Very important thing to note is that participants in hypertensive crisis condition reduced from 5 to 0 (Fig. 6).

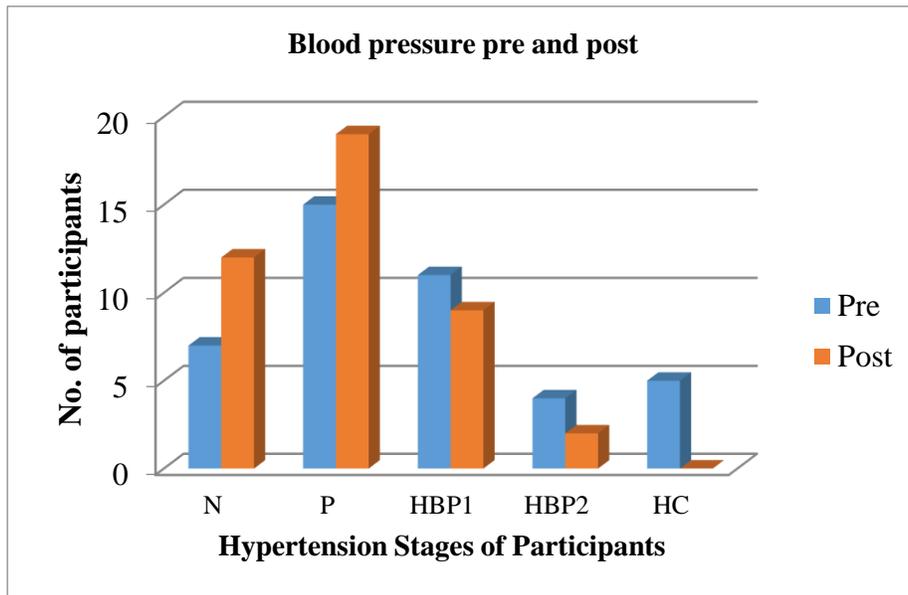


Figure 6: Number of participants in various stages of hypertension during Study II at Himalayan ashram

N-Normal; P-Pre-hypertension; HBP1-High Blood Pressure Stage 1; HBP2-High Blood Pressure Stage 2; HC-Hypertensive Crisis

4.2.3. Semi structured interview outcome

To assess the impact of the program in qualitative terms, semi structured interview was conducted. Replies to the questions are given below.

Q1 Why have you come for this program?

Majority of participants replied that they have come for spiritual progress. Many replied that they have come for mental peace, uniqueness of Himalayan Ashram at *Satkhol*, to participate in the program at Himalayan Ashram, to experience the atmosphere. Some people replied that they wanted to be one with nature and also because the spiritual master likes the place very much. Some wanted to experience the silence of Himalayas.

Q2 How long have you been practicing Sahaj Marg?

Experiences of participants spanned over a very wide range with eight participants having experience up to five years and another five having experience of more than 20 years (Fig. 7). Twenty five participants were in the range of five to ten years whereas sixteen were in the range of ten to twenty years. One participant did not report the experience. When asked to elaborate, some reported that they discontinued for some time, some said that with the grace of master they were active till now. Some reported that they are continuing because of interest in meditation and spirituality and also their faith in the absolute.

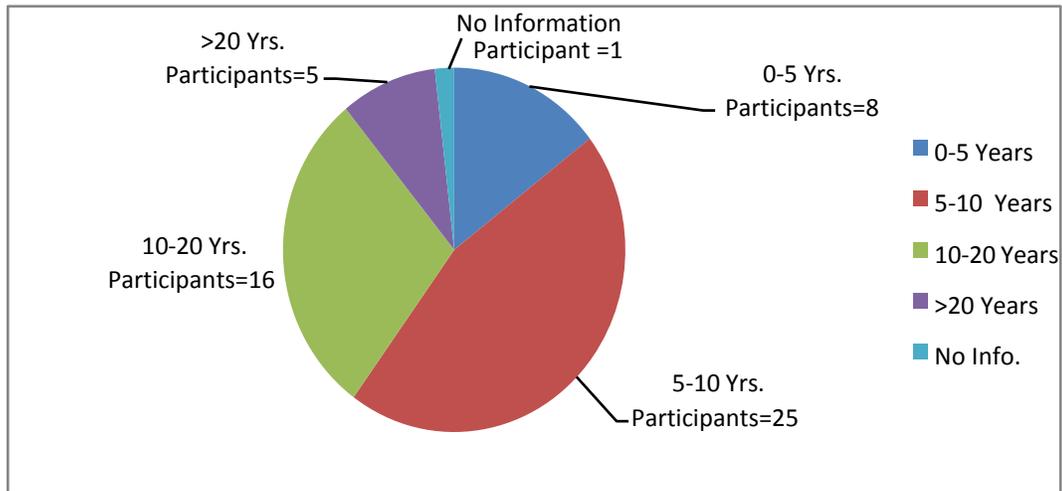


Figure 7. Feedback recorded during Study II at Himalayan *ashram* on participants’ duration of meditation practice

Q3 How regular you are in your practice? (Rate between 1- seldom to 5- Regular)

When asked about the regularity of meditation practice on a scale of 1-5 (1- seldom to 5- regular), thirty two of them reported the highest number 5 (Fig. 8). Twelve of them reported 4 while nine of them reported 3. One participant reported two and nobody reported 1 whereas for one participant data was not available. When asked to elaborate, some reported that they were regular in all aspects of practice whereas some reported that they were regular in the morning meditation but irregular in evening. Some reported their irregularity due to laziness whereas some others had lack of reason for irregularity. One person reported that he was missing diary writing whereas one reported that his practice has improved in *Satkhol*.

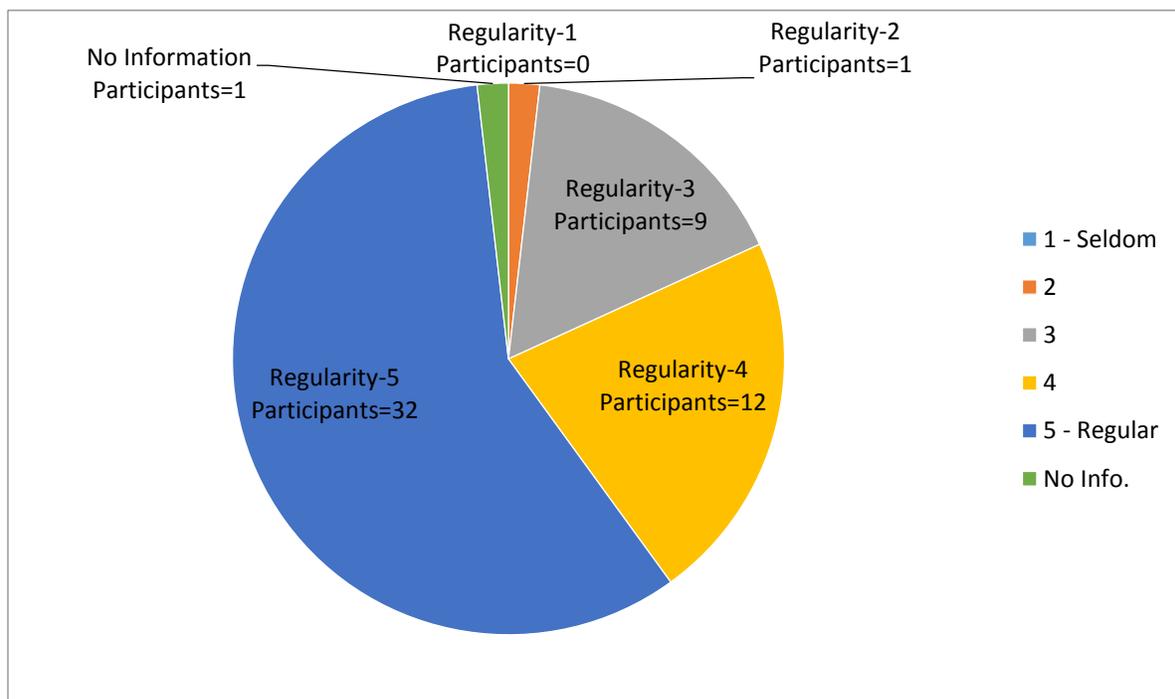


Figure 8: Feedback recorded during Study II at Himalayan *ashram* on participants' regularity of meditation practice

Q4 How much improvement you feel in your spiritual condition during this program?

When asked about the improvement in spiritual condition during the program on a scale of 1-5 (1- Negligible, 5- Tremendous), thirty five of them reported the highest number 5 (Fig. 9). Sixteen of them reported 4 while three of them reported 3. None of them reported 1 or 2 whereas

for one participant, data was not available. When asked to elaborate, some reported that their mind was totally at peace and they developed art of listening to nature silently, some felt totally absorbed in meditation, for some the regularity of practice and sensitivity has increased. One participant reported that he was fully focused on the program without deviation due to group effect while one reported that exploring self was much easier here.

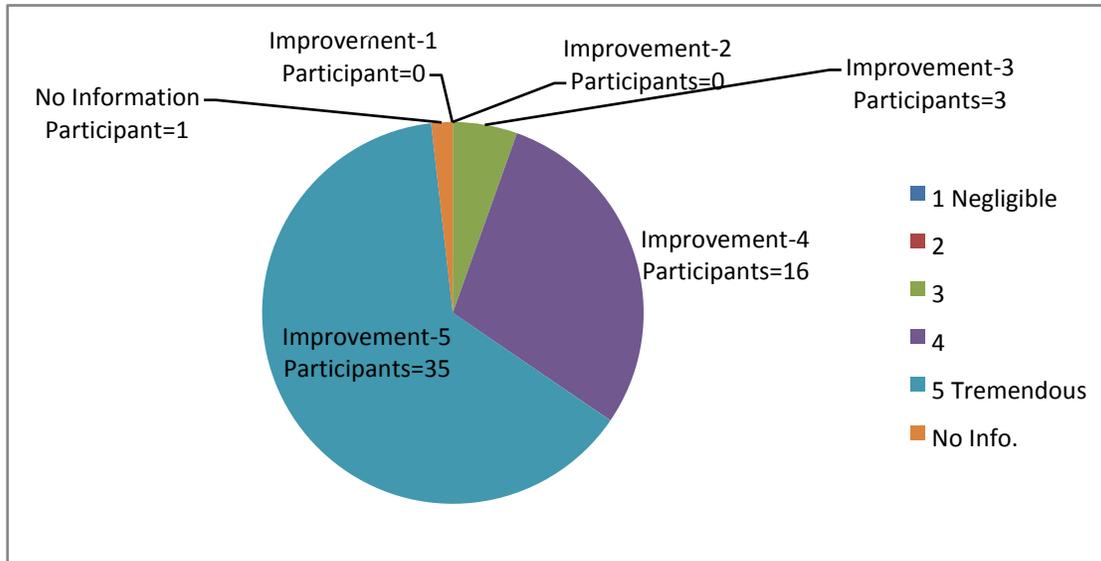


Figure 9. Participants' perception on improvement in their spiritual condition during Study II at Himalayan ashram

Q5. Which activities you liked most in the program?

Six participants reported that they liked all the activities whereas many reported that they liked meeting the Master. Many participants replied that they liked volunteer work, meditation, cleaning process, peaceful atmosphere, introspection, group meditation etc. Some people liked heartfulness program where as some liked the nature walks.

Q6. Which activities you did not like in the program?

Eight participants reported that there was no activity which they did not like. One participant did not like filling this format; one did not like being left totally free whereas one did

not like not having time for introspection. One person felt that unnecessary fear was created about rules and regulations in the *Ashram*. All other participants did not answer the question.

Q7 Anything you want to say on your own?

Many participants felt very good, with two saying that it is like heaven. Some participants wanted to thank the Master for the opportunity. Some felt free inside whereas some felt the real experience of meditation. Some wanted to come again whereas some said that participants are wonderful. One participant wanted to stay there only after retirement whereas one appreciated the program. Another participant felt differently during meditation which was never felt earlier. Twenty seven participants did not mention anything.

4.3. Discussion

Main aim of this work was to study the effect of spiritual practices at Himalayan Ashram of *Sahaj Marg* on well-being related parameters. There were significant improvements in measures of well-being like positive experiences, Emotional well-being, Social well-being and Sat-Chit-Ananda. In a similar study, brief mindfulness meditation training was effective at increasing mindfulness skill, reducing negative mood and fatigue (Zeidan et al., 2010). In another study on *Satsang* carried out in rural India, it was observed that all the rural women participating in *Satsang* felt more empowered and free from stressors (Singh et al., 2014). *Satsang* also has spiritual essence similar to *Sahaj Marg* spiritual practice. In another study it was found that the mindfulness meditation significantly reduces stress levels and it was effective in reducing repetitive and persistent thinking (Kang, Choi & Ryu, 2009). Considering various studies cited about meditation effects earlier, it can be interpreted that the well-being related parameters have moved on expected lines showing significant improvement. The insignificant result on mindfulness may also be attributed to this kind of practice which is heart-centered

instead of being mind-centered. In this practice, practitioners are encouraged to be heart-centered. However, they observe through introspection what is going on in their mind, this is however secondary, and primacy is given to the former. There were no significant changes in flourishing and psychological well-being which may be attributed to some other unaddressed factors in this study. There is a need to investigate them in future research to gain deeper insight.

Depression, Anxiety and Stress have reduced significantly in this study. Consistent to these results, Rocha et al., (2012) have found that regular yoga practice reduced stress, depression and anxiety and it also improved performance in a recognition memory task. In the same study, Salivary Cortisol analysis indicated that yoga practice reduces physiological parameter indicative of stress levels. In a similar study based on *Pranayama*, it was found that regular practice of *pranayama* had a positive effect in lowering the test anxiety (Nemati, 2013). A study on effect of negative air ions concentration found that there was a decline in computer oriented stress and psychological stress (Malik, Singh, & Singh, 2010). The pristine environments similar to Himalayan Ashram are known to harbor high density of beneficial negative air ions (Sun et al., 2007). This may also be relevant as the decrease in stress may be partly due to higher levels of negative air ions in natural surroundings, where sessions of the study were conducted.

In selected physical health indicators, there was significant improvement in Blood Pressure Diastolic values in spite of the fact that normally blood pressure increases at higher altitudes (Lang, et al., 2016; Stöwhas et al., 2013). However, mean Heart Rate values have gone slightly up instead of improvement. It is difficult to explain this negative effect, however, one of the possible reasons may be the higher altitude (Stöwhas et al., 2013). In a related study, a meditation group performed mindfulness meditation 30 minutes daily for seven consecutive

days. They were found to have reduction in Systolic blood pressure and anxiety scale scores (Yu, Xueling, Liyuan & Xiaoyuan, 2013). Another study observed that higher blood pressure (BP) participants in the Mindfulness Based Stress Reduction (MBSR) group had lower BP at week 8 relative to control group (Tavis et al, 2012). In a study on 50 healthy subjects (24 males and 26 females), it was found that heart rate, systolic BP and diastolic BP after *pranayama* and meditation for 15 days, went down (Roopa et al., 2011). In another study on borderline hypertensive subjects, it was found that relaxation and meditation technique is an effective method of lowering borderline hypertensive blood pressures (Benson, Rosner, Marzetta, & Klemchuk, 1974).

In the present study, semi-structured interview was also conducted to study attitude towards the program. It has been found that results obtained for well-being related indicators correlate well with responses of semi-structured interview. Remarkable improvement was reported by most of the participants in their spiritual level. This reflects a support to self-report measures results. The fact that they liked most of the activities in the program also points towards participants feeling contented.

Some participants had higher blood pressure, however it could not be ascertained whether they had similar problem before starting the practice of *Sahaj Marg*. Moreover what other difficulties they are facing in life has not been asked for. Hence it cannot be explained how the practice worked for them before the program, which is a limitation of this study. Also, to more clearly pin point the main factor (the practice, the location, the Master, or all of them) responsible for benefits, control group is desirable. It would have been better to have a control group such as a group of people who practiced but did not attend the ashram, however it was not feasible due to physical limitations of the research team as the *ashram* is too far away and

participants come from different parts of the world, with different backgrounds. Getting people of similar backgrounds at a place other than *ashram* and not doing any spiritual practice was very difficult and hence, this can be considered a limitation. Follow up measurement could also not be done which adds to limitations in terms of finding whether the effect is lasting or not. Future research can explore impact of spiritual practices, locations (*ashrams*, nature trip etc.), the Master (spiritual/ religious guru) and other factors on well-being.

Chapter 5: Study III – Effect of Heartfulness Processes on Heart Rate Variability

Title of the Study: Effect of Heartfulness Cleaning and Meditation on Heart Rate Variability

First two studies have demonstrated overall effect of the Heartfulness spiritual practice based programs. The results point towards a positive effect, however, in order to establish the correlation between the meditation and well-being related parameters, it is important to understand the Heartfulness processes like cleaning and meditation. Systematic studies are also required to demonstrate measurable effects on cardiovascular health, apart from overall well-being. In this connection, Heart Rate Variability (HRV) has been recently used extensively for studying the effect of meditation (Yuen & Sander, 2017; Quintana, Alvares, & Heathers, 2016; Choi, et al., 2017). However there are no studies on effect of Heartfulness meditation related processes like cleaning and meditation using HRV.

This study has been designed specifically with the aim of understanding the Heartfulness cleaning and meditation processes on the basis of HRV, which is a very good marker of cardiovascular health. HRV parameters like LFnu, HFnu and LF/HF ratio are expected to be affected during cleaning and meditation. To gauge the general level of well-being of participants, Cantril's ladder, flourishing and experiences scales have been used at the beginning of data collection. The research methodology and results are given in subsequent sections.

5.1 Research Methodology

In the present study, Heartfulness cleaning and meditation processes have been studied using Heart Rate Variability (HRV), blood pressure, heart rate and subjective ratings of effort, enjoyment, peacefulness and happiness, felt during these processes. Psychological measures like

Cantril's ladder of happiness, flourishing and experiences scale have been used to make the assessment of the participants at the beginning of each session. Approval of Scientific Committee and Institutional Ethics Committee comprising of members from different organisations, was taken at the beginning of the study.

5.1.1. Participants

Enrolment for participation of candidates for this study was carried out through announcements and notices put at the local centers of Heartfulness in the National Capital Region (NCR) (Delhi, Noida, Gurugram and Faridabad). It was explained that the participation would be purely subject to their willingness and would not entitle any remuneration..

Thirty three practitioners of Heartfulness spiritual practice volunteered for this study, however, 3 participants had to be excluded due to technical problems in recording their complete data. Finally, 30 participants (21 males, 9 females; age range 19-70 years, $M = 45.1$ years & $SD = 12.7$ years) who had been practicing the Heartfulness system from 1 month to 372 Months ($M = 142$ months & $SD = 112$ months) on regular basis, were included in the study. All the participants were from the NCR region.

5.1.2. Study Procedure

Each participant reported at the Non-invasive Cardiology Laboratory of Max Super Speciality Hospital, Saket, New Delhi, India on the stipulated date. The entire study process was performed in a quiet room and data was collected between 2:00 p.m. and 5:00 p.m. for each participant, in order to control the time of day effects on HRV. All participants were seated in an upright posture on a chair during data collection and each participant was subjected to a standard set of procedures while data was recorded in a computer. No interruptions for food, drink or for

any other reasons were allowed during this period. On arrival, each participant was briefed about the procedures to be followed during the study and a consent form was signed by every participant. The Holter monitor (Track smart TS12, DYAUSMED Healthcare, India) was applied on the chest after proper skin preparation (applying 37% spirit and shaving, when required). The 10 electrodes were placed on standard positions (4 limb leads and 6 precordial leads V1-V6) over the heart in the intercostal spaces. The electrodes were secured in place with micropore adhesive to minimize artefacts. The entire procedure was performed in 3 stages of 30 minutes each, timed by a stop watch. The first stage was the baseline stage where each participant was seated quietly with eyes open. In the second phase (Stage II), the participants performed Heartfulness cleaning and in the third phase (Stage III), the participants performed Heartfulness meditation aided by yogic transmission under the guidance of Heartfulness trainer. The first reading of pulse was recorded by palpation of radial arteries before Stage I from both arms. Since there was no difference in pulse volume between the two sides in any participant, BP was recorded from the left arm using the standard korotkoff technique with the help of an aneroid manometer (Welch Allyn SN160810173747). The cuff was left in place to make it easier for the next reading. On each occasion of BP recording, a set of two readings was taken at a gap of two minutes and their average was recorded. Same procedure was followed at the end of each stage for recording the pulse rate and BP. During each stage, the Holter recording continued and the data was downloaded at the end of each stage by a trained non-invasive cardiology technician. Finally, the trained technician removed the electrodes and the participants filled up the feedback questionnaire.

5.1.3. Physiological Health Parameters for study

LFnu, HFnu and the ratio of power in low frequency band to power in high frequency band (LF/HF) were recorded for each stage since these are well studied parameters of sympatho-vagal balance, recommended for use in studies on the effect of meditation. Minimum Heart Rate (HR_{\min}) and maximum Heart Rate (HR_{\max}) during each stage were also computed from the data collected during Holter monitoring. Data was analysed using Smart Track Holter Analyzer Software (make DYAUSMED Healthcare, India).

5.1.4. Psychological Tests used

An assessment of happiness and well-being of participants before starting the Holter test was made. Cantril's Ladder of happiness, Scale of Positive and Negative Experience (SPANE) and Flourishing scale were used to assess overall happiness and well-being of the participants. Cantril's Ladder of happiness has been used to get overall assessment of happiness of participants. This is important in order to find in which category of happiness the participants fell in general and whether any participant was on extreme of unhappiness. SPANE has been used to get an idea of how participant was feeling with respect to recent past. SPANE covers both negative and positive aspects and it is a very simple and small scale. Flourishing Scale is an indicator of participants' perception of well-being about various aspects of life (i.e. relationships, self-esteem, purpose and optimism). It is to be noted that before holter monitoring for stages of rest, cleaning and meditation, it was not desirable to use any lengthy or complicated measure, as this would have affected the main processes itself. At the same time it was important to get overall indication of state of mind and subjective feedback. Details of the above tests are given in following sections.

5.1.4.1. Cantril's Ladder of happiness

Cantril's Ladder (Cantril, 1965) was used to get the overall assessment of happiness of a participant. The question asked was "Taking all things together, how happy would you say you are? Please mark 10 on a scale if you are very happy and 0 if you are very unhappy".

5.1.4.2. Scale of Positive and Negative Experience (SPANE)

SPANE (Diener et al., 2010), has been described in section 3.1.3.2. This is the same scale as used in Study I also.

5.1.4.3. Flourishing Scale (FS)

The FS (Diener et al., 2010) has been described in section 3.1.3.3. This is the same scale as used in Study I also.

5.1.5. Feedback Questionnaire

Feeling of peace and happiness is indicative of positive effect on sympathovagal balance. Feedback questionnaire was used to assess peace, happiness, enjoyment and effort felt by the participants during cleaning and meditation processes to support the result as assessed by HRV. Feedback questionnaire consisted of five questions related to the experience during stage II and III (cleaning and meditation). The questions were about how enjoyable, how demanding, how peaceful and how happy they felt after the cleaning and meditation stages respectively. The participants were asked to rate on a scale of 0 – 10 (where '0' denoted 'not at all' and '10' denoted 'very much') for the first four questions whereas the fifth question was a descriptive one, asking their general feeling about the cleaning and meditation stages .

5.1.6. Data analysis

Statistical analysis was carried out using SPSS version 16. HRV data obtained from Holter monitor was analysed using Smart-track Holter analyser Software (make DYAUSMED Healthcare, India). The one-way Analysis of Variance (ANOVA) was used to compare the HRV data (LFnu, HFnu, LF/HF), HR_{min} & HR_{max} for the three stages. One-way ANOVA was also used for comparing the BP readings taken before starting of the baseline stage and at the end of each of the three stages. Post hoc analysis was done using Tukey's honestly significant difference (HSD) test.

5.2 Results

Effect of cleaning and meditation on HRV, HR_{min}, HR_{max} and blood pressure are described in following sections. Psychological assessment of participants has also been described.

5.2.1. Effect of cleaning and meditation on HRV

A significant effect of cleaning and meditation was observed on the three variables of HRV used in the study as compared to the baseline stage. ANOVA was conducted to compare the effects of cleaning and meditation on LFnu, HFnu and LF/HF ratio (Table 7). There was a significant effect of cleaning and meditation on LFnu for the three conditions [$F(2, 87) = 9.98, p < .01$]. There was also a significant effect of cleaning and meditation on HFnu [$F(2, 87) = 7.31, p < .01$] and on LF/HF [$F(2, 87) = 4.98, p < .01$] for the three conditions.

Table 7*HRV parameters during baseline, cleaning and meditation in Study III*

Variables	Baseline	Cleaning	Meditation	F
LFnu	70.82 ± 14.55	55.62 ± 15.06	55.17 ± 16.63	9.98**
HFnu	30.86 ± 16.51	44.37 ± 15.06	44.83 ± 16.63	7.31**
LF/HF	3.45 ± 3.40	1.63 ± 1.30	1.82 ± 2.19	4.98**
HR _{min}	70.00 ± 6.42	67.00 ± 8.15	65.77 ± 7.85	2.52
HR _{max}	97.77 ± 10.01	90.33 ± 8.94	88.80 ± 9.89	7.40**

Note: Values are group mean ± SD; ** Significant at P < 0.01, using Analysis of Variance (ANOVA)

Post hoc comparisons using the Tukey's HSD test indicated that the mean score of LFnu for cleaning (M= 55.62, SD= 15.06) was significantly different from the baseline condition (M= 70.82, SD= 14.55). Similarly, LFnu for meditation (M= 55.17, SD= 16.63) was significantly different from the baseline condition (M= 70.82, SD= 14.55).

Mean score of HFnu for cleaning (M= 44.37, SD= 15.06) was significantly different from the baseline condition (M= 30.86, SD= 16.51). Similarly, HFnu for meditation (M= 44.83, SD= 16.63) was significantly different from the baseline condition (M= 30.86, SD= 16.51).

Mean score of LF/HF for the cleaning (M= 1.63, SD= 1.30) was significantly different from the baseline condition (M= 3.45, SD= 3.40). Similarly, LF/HF for meditation (M= 1.82, SD= 2.19) was significantly different from the baseline condition (M= 3.45, SD= 3.40).

5.2.2. Effect of cleaning and meditation on HR_{min} and HR_{max}

There was no significant effect of cleaning and meditation on HR_{min} at $p < .05$. However, there was a significant effect of cleaning and meditation on HR_{max} for the three conditions [$F(2, 87) = 7.40, p < .01$].

Post hoc comparisons using the Tukey's HSD test indicated that the mean score of HR_{max} for cleaning ($M = 90.33, SD = 8.94$) was significantly different from the baseline condition ($M = 97.77, SD = 10.01$). Similarly, HR_{max} for meditation ($M = 88.80, SD = 9.89$) was significantly different from the baseline condition ($M = 97.77, SD = 10.01$).

5.2.3. Effect of cleaning and meditation on BP

ANOVA was conducted to compare the effects of cleaning and meditation on systolic blood pressure [BP(S)] and diastolic blood pressure [BP(D)] recorded at four points of time (Table 8). There was a significant effect of cleaning and meditation on BP(S) for the four measurements [$F(3, 116) = 4.29, p < .01$], however, effect of cleaning and meditation on BP(D) was not significant at $p < .05$ level.

Table 8

Blood pressure recorded at the beginning and at the end of rest, cleaning and meditation respectively in Study III

Variables	At the beginning	At End of Rest	At End of Cleaning	At End of Meditation	F
BP(S)	119.00 ± 17.69	119.00 ± 17.69	110.33 ± 15.42	106.33 ± 16.50	4.29**
BP(D)	78.33 ± 10.20	78.33 ± 10.20	75.00 ± 11.06	72.33 ± 10.73	2.28

Note: Values are group mean ± SD; ** Significant at $p < .01$, using analysis of variance (ANOVA)

Post hoc comparisons using the Tukey's HSD test indicated that the mean score of BP(S) at end of meditation ($M = 106.33$, $SD = 16.50$) was significantly different from the baseline condition ($M = 119.00$, $SD = 17.69$). However, the BP(S) at end of cleaning and at end of rest was not significantly different from the BP(S) at the beginning.

5.2.4. Psychological assessment of participants

For happiness assessment using Cantril's Ladder, 4 participants were in the range of 5-7 whereas 26 participants were in the range of 8-10 on the scale of 0-10. Flourishing Score of participants was in the range of 38 to 56 with mean value being 50 ± 4.36 . The possible range of scores is from 8 (lowest possible) to 56 (highest Psychological Well-Being possible). Mean SPANE (P), SPANE (N) and SPANE (B) scores were 25.27 ± 3.31 (range 19 – 30), 12.77 ± 3.43 (range 6-19) and 12.50 ± 5.81 (range 2-24), respectively. The score can vary from 6 (lowest possible) to 30 (highest positive/ negative feelings score) for SPANE (P) and SPANE (N) and -24 (unhappiest possible) to 24 (highest affect balance possible) for SPANE B. The present results on happiness scales have shown that all of the participants had sound level of happiness.

Mean scores of response for feedback questionnaire are shown in Fig. 10. For Question 1 (how enjoyable), Question 3 (how peaceful) and Question 4 (how happy), the scores for cleaning and meditation are near 9, which implies "very much". For Question 2 (how demanding), the scores for cleaning and meditation are near 3, which implies low effort.

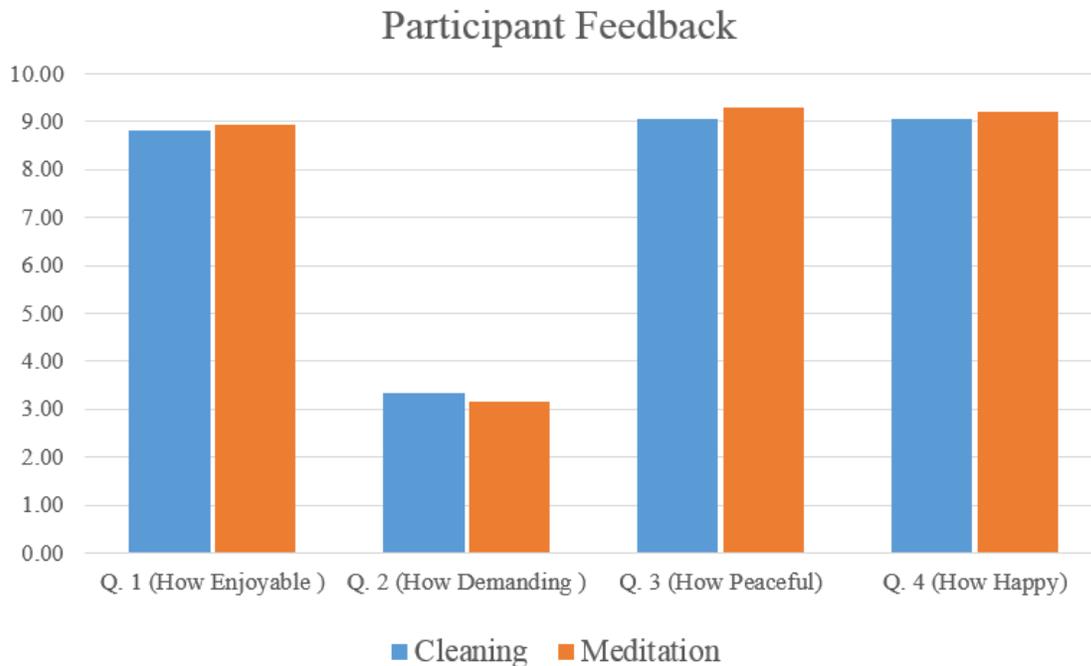


Figure10. Perceptive feedback of participants about their experience during cleaning and meditation processes in Study III

5.3 Discussion

Frequency domain analysis parameters of HRV like LFnu, HFnu and LF/HF are considered to be representative of the autonomic tone. The practice of various types of meditation has consistently shown to increase the parasympathetic tone (increase in HFnu) and reduce the sympathetic tone (LFnu and LF/HF) for the duration of meditation (Krygier et al., 2013; Ramos, França, Nobre, & Santana, 2017). The analysis of HRV data for these parameters in present study revealed that LFnu and LF/HF decreased whereas HFnu increased during cleaning and meditation, compared to their baseline values, thereby indicating that parasympathetic dominance operated during both these procedures. In a study on effect of inward-attention meditation on parasympathetic activity, LF/HF and LFnu decreased whereas HFnu increased, suggesting the benefit of a sympathovagal balance towards parasympathetic activity in meditators (Wu & Lo, 2008). In a systematic review, it was suggested that yoga

practices which included compassion meditation, yogic postures and breathing exercises, lead to improvement in sympathetic nervous system regulation and hypothalamic-pituitary-adrenal system regulation. It also resulted in decrease in depressive and anxious symptoms (Pascoe & Bauer, 2015). In another study on mindfulness meditation and HRV, decrease in absolute low frequency power (LF) and increase in high frequency power (HF) was reported (Krygier et al., 2013). These studies and the systematic reviews support the results found in our study with regard to changes in HRV parameters.

In another study, aimed at looking at the sustained effect of the act of meditation, it was observed that meditation practice during the day appeared to shift sympathovagal balance in favor of parasympathetic dominance during sleep on the following night (Patra & Telles, 2010). Besides, there are studies which have traced the effects of meditation on the autonomic tone along with the effect on brainwave pattern and sought a correlation between the two. In a study of effect of meditation on EEG and autonomic nervous activity alongwith thei association with personality traits, there was an increase in fast theta power and slow alpha power on EEG predominantly in the frontal area, whereas an increase in the HFnu (as a parasympathetic index) and decrease in the LFnu and LF/HF (as sympathetic indices) were observed through analysis of HRV during meditation (Takahashi et al., 2005)

Although the results during meditation in the present study are consistent with all the above studies, an interesting and novel aspect is a similar effect observed with the act of cleaning. Cleaning is a unique feature of the Heartfulness system and is considered to be an active process utilizing the will power of the practitioner. It is being demonstrated for the first time that cleaning also results in increase of parasympathetic tone and decrease of sympathetic

tone, similar to what happens with meditation. Thus, cleaning and meditation both have been found to be equally effective in terms of modulating autonomic tone.

In the present study, there was a significant effect of both cleaning and meditation on HR_{max} values, as the values were lower than those during baseline. In one study Heartfulness meditation was found to be effective in moderating average HR, Respiratory Rate (RR) and BP(S). The authors of that study concluded that a 30-minute session of Heartfulness meditation produces significant relaxation of the autonomic nervous system and favorably moderates basic vital parameters (Amarnath, Prasanthi, Sharma, Jenitha, & Rajan, 2017). In another study on mindfulness meditation, results suggested that mindfulness practice could promote effective HR regulation (Azam, Katz, Mohabir, & Ritvo, 2016). These studies support the results obtained about HR_{max} in the present study, further emphasizing the effectiveness of cleaning and meditation.

The effect of cleaning and meditation on BP(S) was significant with values at end of the session being lower than the baseline values. However, post-hoc analysis indicated that the significant effect of reduction in BP(S) was mainly during meditation and not during cleaning. Similar reduction in BP(S) due to meditation has been observed in other studies (Fennell, Benau, & Atchley, 2016; Olex, Newberg, & Figueredo, 2013). In a review on whether mindfulness meditation mediates the physiological markers of stress, meditation was found to reduce BP(S). Focused attention meditation reduced cortisol in addition to BP(S). Open monitoring meditation reduced HR as well as BP(S). When all the meditation forms were analyzed together, meditation reduced cortisol, C-reactive protein, BP, HR, triglycerides and tumor necrosis factor-alpha (Pascoe, Thompson, Jenkins, & Ski, 2017). Reduction of BP(S) in present study is in line with the findings of other similar studies, supporting further the results obtained by HRV analysis.

Response to the feedback questionnaire by participants indicated that cleaning and meditation were quite enjoyable and made them peaceful and happy. They were found to be very less demanding. In a related study carried out with healthcare providers, results indicated that Heartfulness meditation offers an accessible and efficient method by which physician and nurse burnout can be ameliorated and wellness can be enhanced (Thimmapuram et al., 2017). Physiological evidence of relaxation during meditation has also been found in another study (Fennell, Benau, & Atchley, 2016). Feedback response giving subjective ratings, which is in line with other studies, supports the results obtained by HRV analysis. Feeling of peace and happiness is indicative of positive effect on sympathovagal balance as assessed by HRV. An earlier study has also shown that increase in HF-HRV usually occurs in response to positive emotion (McCraty, Atkinson, Tiller, Rein, & Watkins, 1995).

Cantril's Ladder score (5-7 for 4 participants, 8-10 for 26 participants) gives overall assessment of happiness of participants. Gallup (2009) reported categories of happiness as rating 0-4 slightly happy (suffering – well-being that is at high risk); rating 5-7 moderately happy (struggling – well-being that is moderate or inconsistent), and rating 8-10 highly happy (thriving – well-being that is strong, consistent, and progressing). It seems that the data is skewed positively as the participants are practitioners of Heartfulness. The mean scores of flourishing and experiences scales for participants of this study are better compared to a related study on Indian population on three different samples for validating the flourishing and experiences scales (Singh, Junnarkar, & Jaswal, 2016). This gives an indication of the sound level of well-being of participants.

Chapter 6: Summary, Strengths, Implications, Limitations and Recommendations of the Study

6.1 Summary

The results of Study I carried out at CREST, Bengaluru, were in line with the first hypotheses of the study which stated that the Heartfulness/*Sahaj Marg* spiritual practice based program will have a significant positive effect on mental health indicators and selected physiological indicators. The participants improved significantly on the measures of mental health and its emotional, social and psychological components, positive and negative experiences, flourishing and Sat-Chit-Ananda. The values of depression sub scale of DASS reduced significantly. However, there was no significant change in mindfulness, anxiety, stress sub-scales and the total value of DASS. Subjective feedback of participants during semi-structured interview supported the results obtained by well-being measures. After the program, the participants were more inclined towards looking beyond their negative life experiences and hence, this significantly improved their outlook.

Analysis of the self-report measures in Study II confirmed the second hypotheses of the study - spiritual practice based program at Himalayan Ashram (*Satkhol*) will have a significant positive effect on mental health indicators and selected physiological indicators. Significant improvement in scores for mental health and its emotional and social well-being components, experiences and Sat-Chit-Ananda were observed post spiritual program. Significant reduction was seen for depression, anxiety and stress subscales of DASS. However, no significant change was seen for psychological component of mental health, flourishing and mindfulness. In this study as well, the subjective feedback of participants during semi-structured interview supported the results obtained by well-being measures.

In Study III, Heartfulness processes of cleaning and meditation were found to have a positive effect on sympathovagal balance as demonstrated by significant decrease in LFnu, LF/HF ratio and significant increase in HFnu values. Systolic BP and maximum heart rate were also found to decrease significantly, indicating an overall positive effect of meditation and cleaning, thereby, confirming the third and the final hypotheses of the present study. Positive response of participants about how enjoyable the cleaning and meditation processes were and how peaceful and happy they felt during the processes supported the results found from the HRV analysis.

6.2 Strengths and Limitations of the study

The present study contributes to the knowledge base of effect of meditation based programs and processes in more ways than one. Firstly, what sets this study apart is the fact that it is a combination of three different studies carried out in three different locations with different sample sizes for all the three studies. Secondly, while the first two studies gave an insight on effect of meditation based programs comprising of different practices and activities, the third study on the other hand clearly assessed the effect of Heartfulness cleaning and meditation on Heart Rate Variability (HRV), which is a very reliable parameter for indicating the sympathovagal balance. Study III also took into consideration the positive effect achieved in the first two studies, which is important for scientific understanding of popularity of meditation based programs.

The present study also adopted a very comprehensive methodology. For example, in Study I and Study II, a total of six standardized psychological scales with large number of variables and a few physiological indicators were taken for studying the effect using paired t-test. In addition to that, semi- structured interviews were conducted to reinforce the findings. Such

rigorous methodology is rare and has not been used before for Heartfulness meditation based programs.

In the third study, HRV has been used to study the efficacy of Heartfulness/*Sahaj Marg* cleaning and meditation which has not been done earlier. Moreover, the feedback questionnaire has also been used as an additional instrument to reinforce the findings. It is being demonstrated for the first time that Heartfulness/*Sahaj Marg* cleaning also results in increase of parasympathetic tone and decrease of sympathetic tone, similar to what happens with meditation. These findings help explain the results obtained in the first two studies.

While great care was taken to design and carry out these studies, there were certain limitations that were present. An independent control group would have been beneficial in all the three studies, however, it could not be implemented due to physical limitations of the place and participants. The programs in CREST, Bengaluru and Himalayan Ashram were planned and being run by the organization hence feasibility of control group was not there. In Study III the rest period is compensating to some extent for the lack of a control group. An independent control group would have been a better option. Nevertheless this would have required much greater resources in terms of time and space which was difficult to arrange in the hospital as it is a very busy place. Moreover, the sample size could have been larger, however, delivering program to a smaller group made it more manageable and effective given the constraints under which the studies were conducted. Non follow-up of participants for measurement is another limitation because of which it cannot be ascertained whether the effect is lasting or not. Another limitation was that all participants in the study were already practitioners of this practice, hence, generalization of the findings to the general population should be precautionary. Future studies can be done by recruiting non-practitioners and then analyzing and comparing their responses

with that of practitioners. Another shortcoming was that none of the three studies took into account the socio-demographic differences among the participants in the analysis.

6.3 Implications & Recommendations for future work

Results of the Study I imply that during a 5 day residential program based on Heartfulness spiritual practice, the participants are likely to benefit in terms of various well-being related parameters. This was a training program in which specific modules on time management were also run along with spiritual practice and various related activities. It implies that, teachings imparted can be absorbed along with spiritual practices and other parallel running activities.

In study II as well, the results indicated a positive change, in well-being related parameters. This implies that stay at an *ashram* can be interesting and joyful activity along with spiritual progress and improvement in mental health. This study can go a long way in designing *ashram* stays with purpose not only of spiritual progress but also having a happy and healthy time.

There is some difference in results of Study I and Study II in terms of significant change for psychological component of mental health, flourishing, anxiety, stress and total values of DASS which may be due to some difference in the programs. In CREST, the participants were fully occupied whole day whereas in Himalayan Ashram it was a more relaxed schedule. There were lectures, group discussions and physical exercises in CREST program, which were not part of Himalayan Ashram program.

Results of Study III implied that the cleaning process was nearly as effective as meditation process of Heartfulness. Cleaning and meditation combined together can play a very important role in improving mental and physical health parameters. Further, it also implied that

the positive effects of meditation based programs have their origin in effects created by the processes of cleaning and meditation.

Heartfulness/*Sahaj Marg* spiritual practice is finding greater acceptance throughout the world, however it has not been researched much. Similar studies of Heartfulness spiritual practice based programs in different places, preferably with strong physical supporting parameters like HRV will be of great importance in drawing and reinforcing the present findings. It is, therefore, suggested that effect of Heartfulness programs aimed at non-practitioners should be studied in different settings. Moreover, the inclusion of control group as well as wider physiological parameters can be considered to strengthen the results in future studies. Similar HRV based studies of various other Heartfulness spiritual processes like prayer meditation, group meditation, effect on trainer etc. can be done in future with independent control group and larger sample size to draw more meaningful conclusions. Effect of age, gender, education and experience can also be studied in future with a larger sample size. There is a need to establish the effectiveness of other programs organized by various other R/S groups. There could be some more indepth psychological and physiological studies to understand mechanisms to make these programs effective. Moreover such kinds of R/S programs in rural areas must also be explored as two third population of India resides in rural localities. There is also a need to explore the practices and cultural diversity of various religions as well as socio-cultural practices of different cultures.

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QUESTIONNAIRE BOOKLET

**PURPOSE: To Study Effect of Meditation Based
Programmes on Mental and Selected
Physical Health Indicators**

Name Of Research Scholar

Narendra Kumar Arya

Name of Guides:

Dr Kamlesh Singh

Dr Anushree Malik

Organisation

NRCVVE, IIT DELHI, INDIA

Dear participant,

The purpose of this study is to study the effect of the Sahaj Marg Programmes on Mental and Selected Physical Health Parameters. We need your assistance and personal participation. The questionnaire will take about 45 minutes of your time. Participation is voluntary and anonymous. There is no risk associated with your participation. We are grateful to you for your participation, time and valuable contribution to this project.

Name : _____

Abhyasi Id No.:_____

Age : _____

Gender (please tick) Male () Female ()

Marital Status : Married Unmarried Divorcee

Occupation & Personal Income : _____

Education:_____

Email id :_____

Contact No:_____

Consent Form

I _____ hereby declare that I understand the content of this research project and I grant permission that information obtained from me may be used for research purposes.

Place: _____

Date : Signature

Physical Health Indicators

Self Reported Parameters

History of any medical problem :
during last three years

Any medical problem now :

Any regular medication going on for :
medical problem

Measured Parameters

Height :

Weight :

Blood Pressure :

Heart Rate :

Salivary Cortisol* :

Galvanic Skin Response (GSR)* :

Doctor's comments* :

*If feasible

MHC-SF

Adult MHC-SF (ages 18 or older)

Please answer the following questions which are about how you have been feeling during the past month. Place a check mark in the box that best represents how often you have experienced or felt the following:

कृपया निम्नलिखित प्रश्नों के जबाव दे जाँ आपके साथ पिछले 1 महीने में घटित भावनाओं/ मनोस्थिति पर आधारित हो। आप निम्न बॉक्स में से किसी एक बॉक्स में (✓) चिन्ह लगाएं जाँ आपको अपने अनुभवों से मले खाता हा।

S.N.	During the past month, how often did you feel ...	Never	Once Or Twice	About Once A Week	About 2 or 3 Times A Week	Almost Every Day	Every Day
	पिछले एक महीने में कितनी बार आपने महसूस किया..	कभी- नहीं	एक या दो बार	हफते में एक बार	हफते में 2 या 3 बार	लगभग हर दिन	रोज़ाना
		(0)	(1)	(2)	(3)	(4)	(5)
1	Happy / खुशी						
2	interested in life/ जीवन में दिलचस्पी						
3	satisfied with life/ जीवन से सतुष्ट हैं						
4	that you had something important to contribute to society/ कि आपके पास समाज के लिए कुछ महत्वपूर्ण योगदान करने को है						
5	that you belonged to a community (like a social group, or your neighborhood) / कि आप एक समुदाय अथवा जाति से संबंध रखते हैं। (जैसा कि आपका सामाजिक समूह , आपका स्कूल या आपका पड़ोस)						
6	that our society is a good place for all people/ कि हमारा समाज एक अच्छी जगह है, या सभी लोगों के लिये, एक बेहतर जगह बनता जा रहा है						
7	that people are basically good / कि लोग मूल रूप से अच्छे हैं						
8	that the way our society works makes sense to you/ कि जिस तरीके से समाज काम करता है, वह आपके लिये माननीय है						
9	that you liked most parts of your personality/ कि आपको अपने व्यक्तित्व के अधिकांश भाग पसंद है						

10	good at managing the responsibilities of your daily life/ कि आप अपनी राजोना की जिम्मेदारियों को संभालने में समक्ष हैं						
11	that you had warm and trusting relationships with others/ कि दूसरों के साथ आपके हार्दिक / जोशपूर्ण और भरोसेमंद संबंध हैं						
12	that you had experiences that challenged you to grow and become a better person/ कि आप अपने चुनौतीपूर्ण अनुभवों से आगे बढ़ रहे हो और एक श्रेष्ठ व्यक्ति बने हैं						
13	confident to think or express your own ideas and opinions/ कि आप खुद के विचारों को और राय को व्यक्त करने में आत्म-विश्वास रखते हैं						
14	that your life has a sense of direction or meaning to it/ कि आपके जीवन में दिशा निर्देश और जीवन का मकसद है						

Scale of Positive and Negative Experience (SPANE)

Please think about what you have been doing and experiencing during the past four weeks. Then report how much you experienced each of the following feelings, using the scale below. For each item, select a number from 1 to 5, and indicate that number on your response sheet.

कृपया सोचिए कि आपने पिछले चार सप्ताहों में क्या-क्या करा और क्या अनुभव करा। फिर रिपोर्ट करे/सूचना दे कि आपने निम्नलिखित भावनाओं को कितना अनुभव करा। प्रत्येक आइटम के लिए, 1 से 5 तक एक नम्बर चयन करे और अपनी प्रतिक्रिया पर '✓' लगाए

S.N	Feelings भावनाएँ	Very Rarely or Never बहुत कम या कभी नहीं (1)	Rarely शायद ही कभी (2)	Sometimes कभी-कभी (3)	Often अक्सर (4)	Very Often or Always बहुत अधिक या हमेशा (5)
1	Positive सकारात्मक					
2	Negative नकारात्मक					
3	Good अच्छा					
4	Bad बुरा					
5	Pleasant सुखद (प्रिय)					
6	Unpleasant दुखद (अप्रिय)					
7	Happy सुखी					
8	Sad दुखी					
9	Afraid भयभीत					
10	Joyful हर्षित (आनंदपूर्ण)					
11	Angry क्रोधित					
12	Contented संतुष्ट					

Flourishing Scale

Below are 8 statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by indicating that response for each statement.

नीचे आठ विवरण है जिनसे आप सहमत या असहमत हो सकते हैं निम्नलिखित 1-7 पैमाने (स्केल) का उपयोग करते हुए, प्रत्येक आइटम के साथ अपनी सहमति का संकेत '✓' लगाकर करें।

S.N	Statements वक्तव्य	Strongly disagree दृढ़ता से असहमत (1)	Disagree असहमत (2)	Slightly disagree थोड़ा असहमत (3)	Neither agree nor disagree ना सहमत ना असहमत (4)	Slightly agree थोड़ा सहमत (5)	Agree सहमत (6)	Strongly agree दृढ़ता से सहमत (7)
1	I lead a purposeful and meaningful life मैं एक उद्देश्यपूर्ण और सार्थक जीवन जीता/जीती हूँ							
2	My social relationships are supportive and rewarding मेरे सामाजिक (पारस्परिक) संबंध सहायक और लाभप्रद हैं							
3	I am engaged and interested in my daily activities मैं दैनिक गतिविधियों में व्यस्त रहता/रहती हूँ और रुचि लेता/लेती हूँ							
4	I actively contribute to the happiness and well-being of others मैं सक्रिय रूप से दूसरों की खुशी और भलाई में योगदान करता/करती हूँ							
5	I am competent and capable in the activities that are important to me मैं महत्वपूर्ण गतिविधियों में सक्षम और समर्थ हूँ							
6	I am a good person and live a good life मैं एक अच्छा इंसान हूँ और एक अच्छा जीवन जीता/जीती हूँ							
7	I am optimistic about my future मैं अपने जीवन के भविष्य के लिए आशावादी हूँ							
8	People respect me लागे मेरा सम्मान करते हैं							

Sat-Chit-Ananda Scale

सत् चित् आनन्द

Instructions: Please, answer all questions. Tick (✓) the best answer for each that applies to you.

निर्देश : कृपया सभी प्रश्नों का उत्तर दें। कृपया आप पर लागू होने वाले सबसे अच्छे उत्तर पर टिक (✓) करें।

S.N	Items वक्तव्य	Does not apply to me	Applies to me a little	Neutral	Somewhat applies to me	Mostly applies to me
		(1)	(2)	(3)	(4)	(5)
1	I usually see positivity in others मैं प्रायः औरों में सकारात्मकता देखता हूँ	मुझ पर लागू नहीं होता	मुझ पर प्रायः लागू नहीं होता	उदासीन	मुझ पर थोड़ा लागू होता है	मुझ पर लगभग पूरा लागू होता है
2	I always consider everyone has good qualities मैं हमेशा मानता हूँ कि हर एक में अच्छे गुण हैं					
3	I see only goodness in nature मैं दूसरों में केवल अच्छाई देखता हूँ					
4	I feel we all belong with each other मैं महसूस करता हूँ कि हम सभी एक दूसरे से संबंध रखते हैं					
5	I take full responsibility for my thoughts मैं अपने विचारों की पूर्ण ज़िम्मेदारी लेता हूँ					
6	I take full responsibility for my speech मैं अपने कथनों की पूर्ण ज़िम्मेदारी लेता हूँ					
7	I take full responsibility for my feelings मैं अपनी भावनाओं की पूर्ण ज़िम्मेदारी लेता हूँ					
8	I take full responsibility for my actions मैं अपने कार्यों की पूर्ण ज़िम्मेदारी लेता हूँ					
9	I love all the people I know मैं उन सभी को प्यार करता हूँ जिनको मैं जानता हूँ					
10	My thoughts usually do not disturb me मारे विचार मुझे प्रायः परेशान नहीं करते					
11	I see things happening but without affecting me मैं घटनाओं को मझे प्रभावित किये बगैर घटित होते हुये देखता हूँ					
12	I am not disturbed by the problems मैं समस्याओं से परेशान नहीं होता					

13	I have the energy to execute my plans मुझमें अपनी योजनाओं को कार्यान्वित करने के लिये ऊर्जा है					
14	I always take initiatives मैं हमेशा पहल करता हूँ					
15	I have the ability to stand up for myself when necessary मुझमें ज़रूरत होने पर अपने लिये खड़े होने की योग्यता है					
16	Challenge in dealing with difficult people motivates me to work even better मुश्किल लोगों के साथ काम करने की चुनौती मुझे प्रेरित करती है					
17	I always feel there is a way to achieve what you want to achieve मैं हमेशा महसूस करता हूँ कि जो आप पाना चाहते हो उसके लिय कोई रास्ता है					

MAAS

Day-to-Day Experiences

Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what really reflects your experience rather than what you think your experience should be. Please treat each item separately from every other item.

दिन प्रतिदिन के अनुभव

निर्देश : आपके प्रतिदिन के अनुभव के बारे में कुछ वक्तव्य नीचे दिये गये हैं। कृपया बतायें कि प्रत्येक अनुभव आपको कितनी बार होता है। कृपया उत्तर इस आधार पर दें कि आपका उत्तर सही मायनों में आपका अनुभव दर्शाये, नाकि वो जो आपके विचार में आपका उत्तर होना चाहिये। कृपया प्रत्येक वक्तव्य को बाकी सभी वक्तव्यों से अलग मानें।

S.N	Statements वक्तव्य	Almost Always लगभग हमेशा 1	Very Frequ- ently बहुत बार बार 2	Some- what Frequ- ently कुछ बर बार 3	Some- what Infreq- uently कुछ यदा कदा 4	Very infreq- uently बहुत यदा कदा 5	Almost Never लगभग कभी नहीं 6
1	I could be experiencing some emotion and not be conscious of it until sometime later. मैं कुछ भाव अनुभव कर रहा हूँगा और उसके प्रति सचते नहीं रहूँगा						
2	I break or spill things because of carelessness, not paying attention, or thinking of something else. मैं लापरवाही, ध्यान न देना या किसी और बात के बारे में सोचने के कारण चीजें तोड़ता या नष्ट करता हूँ						
3	I find it difficult to stay focused on what's happening in the present. मेरे लिये वर्तमान की गतिविधियों पर ध्यान लगाना मुश्किल हो जाता है						
4	I tend to walk quickly to get where I'm going without paying attention to what I experience along the way. मुझे जहाँ जाना है, उसकी ओर तेजी से चलने के लिये प्रवृत्त हो जाता हूँ, और रास्ते के अनुभव पर ध्यान नहीं देता						
5	I tend not to notice feelings of physical tension or discomfort until they really grab my attention. मेरी प्रवृत्ति हो जाती है कि शारीरिक तनाव और बचैनी तब तक महसूस न करूँ जब तक कि वो मेरा ध्यान छीन नहीं लेते						

6	I forget a person's name almost as soon as I've been told it for the first time. मैं किसी व्यक्ति का नाम जैसे ही मुझे पहली बार बताया जाता है, लगभग वैसे ही भूल जाता हूँ						
7	It seems I am "running on automatic," without much awareness of what I'm doing. ऐसा लगता है मैं स्वचालन पर चल रहा हूँ बिना एहसास किये कि मैं क्या कर रहा हूँ						
8	I rush through activities without being really attentive to them. मैं गतिविधियों पर बिना ध्यान दिये उन से तेजी से निकल जाता हूँ						
9	I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there. मैं जिस लक्ष्य को पाना चाहता हूँ उस पर इतना केन्द्रित हो जाता हूँ कि मेरा उससे संपर्क छूट जाता है जो मैं वहाँ पहुँचने के लिये कर रहा हूँ						
10	I do jobs or tasks automatically, without being aware of what I'm doing मैं कार्यों को स्वचालित रूप से करता हूँ बिना यह सचते हुए कि मैं क्या कर रहा हूँ						
11	I find myself listening to someone with one ear, doing something else at the same time. मैं अपने आप को किसी को एक कान से सुनता हुआ पाता हूँ जबकि मैं उस समय कुछ और कर रहा होता हूँ						
12	I drive places on "automatic pilot" and then wonder why I went there. मैं "स्वचालित पायलट" पर गाड़ी चलाते हुए चला जाता हूँ फिर आश्चर्य करता हूँ कि वहाँ क्यों गया						
13	I find myself preoccupied with the future or the past. मैं अपने आप को भविष्य या बीते हुये काल में मग्न पाता हूँ						
14	I find myself doing things without paying attention. मैं अपने आप को बिना ध्यान दिये गतिविधियाँ करते हुये पाता हूँ						
15	I snack without being aware that I'm eating. मैं बिना यह एहसास किये कि मैं खा रहा हूँ छोटी खाने की चीजें खा लेता हूँ						

(DASS-21)

Please read each statement and select a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any one statement. This assessment is not intended to be a diagnosis. If you are concerned about your results in any way, please speak with a qualified health professional.

कृपया प्रत्येक कथित आइटम का ध्यान से पढ़ें संख्या 0, 1, 2 और 3 में से कोई एक अंक चुनकर निम्नलिखित कथनों के सामने (✓) चिन्ह लगाएं जा आपके पिछले 1 सप्ताह में घटित अनुभवों से मले खाता हो। इनमें कोई सही या गलत जबाब नहीं है। कृपया किसी एक प्रश्न पर ज्यादा समय ना लगाएं।

S.N.	Statements वक्तव्य	Did not apply to me at all	Applied to me to some degree or for some of the time	Applied to me to a Considerable degree or for a good part of time	Applied to me very much or most of the time
		मरे लिये कभी भी लागू नहीं होता (0)	कुछ हद तक लागू होता है (1)	काफी हद तक लागू है (2)	बहुत ज्यादा लागू है (3)
1	I found it hard to 'wind down' मरे लिए "तनावमुक्त" (आराम से) रहना कठिन है				
2	I was aware of dryness of my mouth मैं मेरे मुंह के सूखेपन से अवगत हूँ				
3	I couldn't seem to experience any positive feelings at all मैं कभी भी सकारात्मक महसूस नहीं करता/करती				
4	I experienced breathing difficulty (e.g. breathlessness or excessively rapid breathing in the absence of physical exertion) मुझे सांस लेने में कठिनाई रहती है (जैसे, सांस शारीरिक श्रम के अभाव में भी जरूरत से ज्यादा तेजी से साँस लेना)				
5	I found it difficult to work up the initiative to do things मुझे अपने कार्यों में नेतृत्व करने में कठिनाई हाती है				
6	I tended to over-react to situations मैं अपनी परिस्थितियों में बहुत ज्यादा प्रतिक्रिया देता/देती हूँ				
7	I experienced trembling (e.g. in the hands) मैं कंपन महसूस करता/करती हूँ (जैसे, हाथों में)				

8	I felt that I was using a lot of nervous energy मुझे लगा कि मैं परेशानी में उर्जा का बहुत उपयोग कर रहा था/रही थी				
9	I was worried about situations in which I might panic and make a fool of myself मैं उन परिस्थितियों का लेकर चिंता करता/करती हूँ जिनमें कि कहीं मैं घबरा जाऊँ और बवेकूफ बनूँ				
10	I felt that I had nothing to look forward to मुझे लगता है कि मेरे पास आगे बढ़ने के लिए कुछ भी नहीं है				
11	I found myself getting agitated मैं अपने आपको व्यथित/उत्तेजित पाता/पाती हूँ				
12	I found it difficult to relax मेरे लिए शांत रहना कठिन है				
13	I felt down-hearted and blue मैं हताश और उदास था/थी				
14	I was intolerant of anything that kept me from getting on with what I was doing किसी काम को लगातार करना मेरे लिए असहनीय होता है				
15	I felt I was close to panic मुझे एसा लगता था कि मैं जल्दी घबरा जाता/जाती हूँ				
16	I was unable to become enthusiastic about anything मैं किसी भी चीज का लेकर उत्साहित नहीं होता/होती				
17	I felt I wasn't worth much as a person मुझे महसूस होता है कि मैं एक यागेय इंसान जैसा/जैसी नहीं हूँ।				
18	I felt that I was rather touchy मुझे महसूस होता कि मैं चिड़चिड़े/भावुक स्वभाव का हो गया हूँ/गई हूँ				
19	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart 'missing a beat') बिना शारीरिक परिश्रम के भी मैं अपने दिल की धड़कन से अवगत हो जाता/जाती हूँ (दिल डूबना या दिल की धड़कन बढ़ना)				
20	I felt scared without any good reason मैं बिना किसी/कोई कारण के डर जाता/जाती हूँ				
21	I felt that life was meaningless मुझे लगता है कि मेरा जीवन महत्वहीन है				

Semi Structured Interview

Name : _____ Abhyasi Id No. : _____

Place: _____ Date: _____

1. Why have you come for this programme?

आप इस प्रोग्राम में क्यों आये हैं

2. How long have you been practicing Sahaj Marg? आप कितने समय से सहज मार्ग का अभ्यास कर रहे हैं

No. of Years / वर्ष _____

Pls Elaborate / विस्तार में :

3. How regular you are in your practice? (Rate between 1-seldom to 5-Regular)
आप अपने अभ्यास में कितने नियमित हैं ? ("1- कभी कभी" से "5-नियमित" के बीच अंक दें)

1 2 3 4 5

Pls Elaborate/ विस्तार में :

4. How much improvement you feel in your spiritual condition during this program? (Rate between 1-negligible to 5-tremendous)

आपको अपनी आध्यात्मिक स्थिति में कितना सुधार महसूस हो रहा है ("1- नहीं समान" से "5- ज़बरदस्त" के बीच अंक दें)

1 2 3 4 5

Pls Elaborate/ विस्तार में :

5. Which activities you liked most in this program?

आपको इस प्रोग्राम में कौनसी गतिविधियाँ सबसे अच्छी लगीं

1.

2.

3.

6. Which activities you did not like in this program?

आपको इस प्रोग्राम में कौनसी गतिविधियाँ अच्छी नहीं लगीं

1.

2.

3.

7. Anything you want to say on your own.

आप स्वयं कुछ बताना चाहेंगे

QUESTIONNAIRE BOOKLET

**PURPOSE: Understanding the Heartfulness
Meditation Related Processes like
Meditation and Cleaning using HRV
and Questionnaire**

Research Team:

Narendra Kumar Arya, Research Scholar, IIT Delhi

Dr Kamlesh Singh, Assoc. Prof IIT Delhi. Guide

Dr Anushree Malik, Assoc. Prof IIT Delhi. Guide

Dr Rahul Mehrotra, Head- Non Invasive Cardiology, Max Super
Speciality Hospital Saket, New Delhi

Organizations

NRCVEE, IIT DELHI, INDIA

MAX SUPER SPECIALITY HOSPITAL
SAKET, NEW DELHI

PART I

(To be filled before starting Holter Test and Meditation processes)

Dear participant,

The purpose of this study is to understand the Heartfulness spiritual practice related processes like Cleaning and Meditation using HRV and Questionnaire. We need your assistance and personal participation. The questionnaire has two parts, Part I is to be filled before starting the Holter Test and Part II is to be filled after Holter Test and meditation processes are complete. Participation is voluntary and anonymous. There is no risk associated with your participation. We are grateful to you for your participation, time and valuable contribution to this project.

CONSENT FORM

I _____ hereby declare that I understand the content of this research project and I grant permission that information obtained from me may be used for research purposes.

Place:

Date :

Signature

Background Questionnaire

Name : _____

Abhyasi Id No. : _____

Date of starting Heartfulness meditation : _____

Age : _____

Gender (please tick) Male () Female ()

Marital Status : Married Unmarried Divorcee

Occupation : _____

Education : _____

Email id : _____

Contact No : _____

History of any medical problem :
during last three years

Any medical problem now :

Any regular medication going on :
for medical problem

Height :

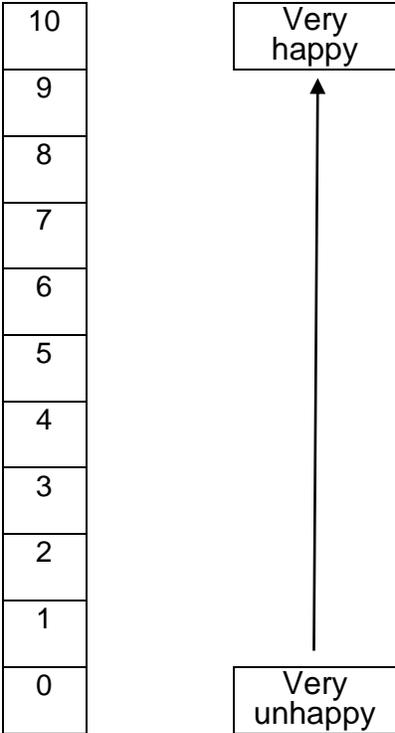
Weight :

Blood Pressure :

Heart Rate :

Doctor's comments :

Q1. Taking all things together, how happy would you say you are? Please mark a 10 on a scale if you are very happy and 0 if you are very unhappy.



Flourishing Scale

Below are 8 statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by indicating that response for each statement.

S.N	Statements	Strongly disagree (1)	Disagree (2)	Slightly disagree (3)	Neither agree nor disagree (4)	Slightly agree (5)	Agree (6)	Strongly agree (7)
1	I lead a purposeful and meaningful life							
2	My social relationships are supportive and rewarding							
3	I am engaged and interested in my daily activities							
4	I actively contribute to the happiness and well-being of others							
5	I am competent and capable in the activities that are important to me							
6	I am a good person and live a good life							
7	I am optimistic about my future							
8	People respect me							

Scale of Positive and Negative Experience (SPANE)

Please think about what you have been doing and experiencing during the past four weeks. Then report how much you experienced each of the following feelings, using the scale below. For each item, select a number from 1 to 5, and indicate that number on your response sheet.

S.N	Feelings	Very Rarely or Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Very Often or Always (5)
1	Positive					
2	Negative					
3	Good					
4	Bad					
5	Pleasant					
6	Unpleasant					
7	Happy					
8	Sad					
9	Afraid					
10	Joyful					
11	Angry					
12	Contented					

PART II

(To be filled after Holter test and Meditation processes)

1. How enjoyable was the cleaning process for you? Please rate on a scale of '0 to 10' (0= 'not at all' to 10 = 'very much') and describe.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

2. How demanding was the cleaning process for you? Please rate on a scale of '0 to 10' (0= 'not at all' to 10 = 'very much') and describe.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

3. How peaceful you felt at the end of the cleaning process compared to beginning? Please rate on a scale of '0 to 10' (0= 'not at all' to 10 = 'very much') and describe.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

4. How happy you felt at the end of the cleaning process compared to beginning? Please rate on a scale of '0 to 10' (0= 'not at all' to 10 = 'very much') and describe.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

5. Your general feeling about cleaning process?

6. How enjoyable was the Meditation process for you? Please rate on a scale of '0 to 10' (0= 'not at all' to 10 = 'very much') and describe.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

7. How demanding was the Meditation process for you? Please rate on a scale of '0 to 10' (0= 'not at all' to 10 = 'very much') and describe.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

8. How peaceful you felt at the end of the Meditation process compared to beginning? Please rate on a scale of '0 to 10' (0= 'not at all' to 10 = 'very much') and describe.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

9. How happy you felt at the end of the Meditation process compared to beginning? Please rate on a scale of '0 to 10' (0= 'not at all' to 10 = 'very much') and describe.

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

10. Your general feeling about Meditation process?

Curriculum Vitae

Name : Narendra Kumar Arya

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Education : Ph.D, National Resource Centre for Value Education in engineering,
Indian Institute of Technology, Delhi **2018**

M.Tech, Aerospace Engineering, Indian Institute of Technology, Kanpur **1990**

B.Tech (Hons.), Aeronautical Engineering, Indian Institute of Technology,
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Papers Presented/Published During Ph.D:

Arya, N. K., Singh, K., Malik, A., Mehrotra, R. (2018). Effect of Heartfulness Cleaning and Meditation on Heart Rate Variability. *Indian Heart Journal* (2018), DOI: <http://doi.org/10.1016/j.ihj.2018.05.004>

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Arya, N. K., Singh, K., & Malik, A. (2013). “Effect of Meditation on work performance, state of mind and health” paper presented in International Conference on Contribution of Science & Technology in the World Progress, held at Metcalfe House, Delhi from 5th to 7th Dec 2013.

Arya N. K., Singh K., & Malik A., (2013). Effect of Meditation on Work Performance, State of Mind and Health. *Jigyasa Visheshank*, 1, 48-52. (Same paper presented in conference shown previously)

Singh, K., Khari, C., Amonkar, R., **Arya, N. K.**, & Kesav S.K. (2013). “Development and Validation of a new Scale: *Sat-Chit_Ananda* Scale” Paper published in *International Journal on Vedic Foundations of Management*, 1 (2), 54-74.

Singh K., Khari C., Amonkar R.S., **Arya N.K.**, & Kumar S.K., (2013). Development and Validation of a new Scale: Sat-Chit-Ananda Scale. 2nd International Conference on Vedic Foundations of Indian Management. (Same paper presented in conference shown previously)