

Influence of Vipassana, Raja Yoga and Sudarshan Kriya Yoga on Well-being and Character strengths

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Abstract

The World Health Organization (WHO) encourages using evidence-based traditional yoga and meditation practices for the promotion of mental health and well-being. This study intends to examine the influence of three Indian meditation practices, i.e., Vipassana mindfulness meditation, Raja Yoga and Sudarshan Kriya Yoga, by employing a cross-sectional design. 168 healthy adults - 84 meditators (n=28 for each practice) and 84 non-meditators – had voluntarily participated. Meditators reported significantly higher subjective well-being (satisfaction with life, positive affect), psychological well-being (flourishing), presence of meaning in life, and character strengths (hope, gratitude, curiosity, zest and love), and significantly lower negative affect as compared to non-meditators. The medium to large effect sizes (Cohen's d: .572 to .955), except for zest, were marked with a significant association (r_p : |.245 to .487|, $p < .05$) with the duration of meditation, thereby signifying enhanced benefits of sustained practice. 60.2% of the variance in flourishing was explained by satisfaction in life, positive affect, hope, gratitude and presence of meaning. These evidence-based universal practices accessible across the globe and acceptable to people of all ages and backgrounds are worthy targets of rigorous research, adoption at the workplace and widespread dissemination to further SDG 3 – 'Ensure healthy lives and promote well-being for all at all ages.'

Keywords: Character strengths, Flourishing, Raja Yoga, Sudarshan Kriya Yoga, Vipassana mindfulness meditation, Well-being

Introduction

'Ensure healthy lives and promote well-being for all at all ages' is goal 3 of the 17 sustainable development goals (SDGs) established by the United Nations (UN) in 2015 (SDG Report, 2021). In its comprehensive mental health action plan 2013-2030, the World Health Organization (WHO) emphasizes that good mental health and well-being are essential for all to lead fulfilling lives, realize our potential, contribute to society and exhibit resilience when faced with adversity (WHO, 2021).

Organization for Economic Co-operation and Development (OECD) showcased how well-being is a valuable indicator of progress with the power to foretell societal issues, like the Egyptian crisis, that other social and economic indicators fail to identify (OECD, 2013). In fact, economic growth alone is grossly inadequate to maximize happiness and is responsible for unleashing new forms of

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unhappiness and isolation, including epidemics of substance abuse, uncontrolled use of social media, gaming, and compulsive shopping (Global Happiness and Well-Being Policy Report, 2019). Thus well-being, which is essential at the level of individual and society at large, needs to be measured with rigour and improved through sustained collective effort. Intriguingly, WHO, in its action plan, explicitly encourages using evidence-based traditional yoga and meditation practices to address this ever-rising gap in achieving the highest standard of mental health and well-being. With the UN suggesting that the

COVID-19 pandemic has halted or reversed a decade of progress in health (SDG Report, 2021), investigation and proliferation of relevant practices have gained unprecedented importance.

India has been at the forefront in disseminating the wisdom and freely sharing the traditional practices - from proposing the International Yoga Day at United Nations General Assembly (UNGA) in 2014 and leading its celebrations in 2021 with the theme 'Yoga for well-being' to funding projects and encouraging researchers to demystify the science behind ancient yoga and meditation practices through the SATYAM (Science and Technology of Yoga and Meditation) programme. As proclaimed by Swami Vivekananda, a renowned social and spiritual leader, "India, the land of introspection and spirituality, again must start the wave which is going to spiritualize the material civilization of the world. Here is the life-giving water with which must be quenched the burning fire of materialism which is burning the core of the hearts of millions in other lands. Believe me, my friends, this is going to be" (Vivekananda, 1987, para. 3). The choice of the words 'life-giving water' is befitting in light of the growing focus of positive psychology towards interventions that not only foster well-being but also build lasting happiness with concomitant strengths of character that enable individuals and society to flourish. For Aristotle (trans. 2000), happiness consists in, and only in, the exercise of virtues of character and thought. Positive psychology has turned to interventions that foster well-being, build enduring happiness and accompanying strengths of character. (Seligman et al., 2005).

Thus, the need of the hour is not to be myopic to reduce or eliminate specific symptoms of mental disorders but instead focus on examining and disseminating the holistic benefits of universal practices - from well-being to lasting happiness to character strengths, that are more relevant to humanity than ever before. A case in point is the

commoditization and commercialization of decontextualized mindfulness practices, often being looked upon like a pill or a shortcut (Khong, 2021). The roots of modern-day mindfulness based interventions like MBSR can be traced to Vipassana and Zen meditation, which are based on Buddha's teachings that originated nearly 2600 years ago. Interestingly, reducing stress and health benefits are the primary, if not the only, aim of modern mindfulness based interventions. In contrast, such benefits are the by-products that arise from the correct practice of Vipassana and Zen, as they aim at liberation from human suffering, common to the whole humankind, and developing perfections or highest virtues (termed as *Pāramīs*) like generosity, patience and loving-kindness (Chiesa & Malinowski, 2011; Sinha et al., 2020). Thus, 'mindfulness is not two-minute noodles' (Singh, 2013), instead it is an idiographic process by which the meditator experientially gains the insight of 'impermanence', by realizing the ephemeral nature of the self and the world, thereby opening the door to enduring peace and happiness (Hart & Goenka, 2011; C. Sharma, 2016). As elucidated in the teachings of the Buddha in the Mahā Parinibbāna Sutta:

*'Aniccā vata saṅkhārā, uppādavaya-dhamminō,
Uppajjitvā nirujjhanti, tesaṃ vūpasamō sukhō'*

Thus, the choice of the meditation practice is of paramount importance, especially as the outcome of the meditation practice depends on the intention of the practitioners (Shapiro, 1992). Accordingly, this paper aims to address this gap by studying the influence of select traditional Indian meditation practices viz. Vipassana, Raja Yoga and Sudarshan Kriya Yoga, which are wholesome and aligned to the fundamental principles viz. universal, evidence-based and life-course (for all life stages) approach on which WHO's action plan 2013-2030 hinges. The practices have been encapsulated below:

Vipassana

The word mindfulness derives from the Pali word 'Sati', which can be found in early Buddhist scriptures such as Abhidhamma (Chiesa & Malinowski, 2011). Vipassana, referred to as mindfulness meditation, is taught as a standardized practice with a prescribed code of conduct across 225 centres and 136 non-centres across the globe. Vipassana enables the practitioner to see the 'reality as it is' by experiencing the impermanent nature of internal and external phenomena, as one observes the sensations within the body with equanimity. The training is divided into morality (sīla), concentration (samādhi), and wisdom developed through direct personal experience (bhāvanā-mayā paññā). As succinctly put by late Shri S N Goenka, who spread Vipassana since 1969 around the globe: "Every moment that we observe reality without reacting, we penetrate towards the ultimate truth" (Hart & Goenka, 2011, p. 119). After one's practice, sharing peace and harmony with others through loving-kindness meditation (mettā bhāvanā) is integral to Vipassana (Vipassana Meditation - As Taught by S. N. Goenka in the Tradition of Sayagyi U Ba Khin, 2018).

Raja Yoga

Raja Yoga meditation is at the heart of the teachings of the Brahma Kumaris, an international NGO headquartered in India and accredited by the United Nations. Founded in 1937, Brahma Kumaris is the largest spiritual organization globally that women lead with centres in over 110 countries. As 'Raja' means the sovereign or supreme and 'Yoga' means to unite, Raja Yoga enables one to connect with the supreme, an incorporeal being-of-light, and return to a state of inner peace, natural happiness and personal power by re-awakening the soul's original qualities and divine virtues. It is an open-eyed meditation technique that utilizes relaxation, concentration, and contemplation processes with a flow of positive thoughts that lead to the comprehension

and realization of one's true eternal identity (Raja Yoga Meditation, 2020; Sahu & Dubey, 2015).

Sudarshan Kriya Yoga

With roots in traditional yoga, Sudarshan Kriya Yoga (SKY), taught by the non-profit Art of Living Foundation in 156 countries, is a form of rhythmic controlled breathing practice with four sequential components: Ujjayi (ocean breathing), Bhastrika (bellows breathing), chanting of 'Om' with prolonged expiration and SKY (cyclical breathing at varying rates - slow, medium and fast). With a focus on subtle aspects like intensity, quality, timing and balance of breath cycles, the breath work is followed by meditation and rest (Brown & Gerbarg, 2005). Founded by Sri Sri Ravi Shankar in 1981, SKY is guided by his philosophy: "Unless we have a stress-free mind and a violence-free society, we cannot achieve world peace" (Art of Living India, 2021).

With no rituals or dogmas or religious mantras, these practices are universal as they awaken through: (a) the power of rhythmic breathing - SKY, (b) awareness of natural breath and sensations with equanimity - Vipassana and (c) choosing positive thoughts with soul consciousness - Raja Yoga. As breath, sensations, thoughts and consciousness are non-sectarian and accessible to all beings, these practices are universal and empower people to turn inwards and gain anytime & anywhere on their own. There is evidence about the holistic benefits of these three practices on health (physical and mental) and well-being (Misra et al., 2013; Sahu & Dubey, 2015; Brown & Gerbarg, 2005; Chiesa & Serretti, 2009; Davidson & Begley, 2012; Zope & Zope, 2013). Thankfully, Vipassana and Raja Yoga are offered free and SKY at a one-time token cost. Thus, these evidence-based universal practices offered across the globe and acceptable to people of all faiths, ages and backgrounds are worthy targets of rigorous research and dissemination to meet goal 3 (SDG) and actualize WHO's action plan 2013-

2030.

Theoretical Framework and Hypotheses development

Well-Being

Well-being has presumably been a major implicit or explicit goal of human beings since early human civilization, as reflected in the wisdom of Aristotle and the Buddha. While a unified definition of well-being has eluded scholars, it is a multifaceted concept derived from two broad approaches viz. Subjective well-being (SWB) and Psychological well-being (PWB). SWB encompasses two elements (a) Evaluative well-being - a long-term reflective assessment or cognitive judgment of one's sense of the quality of life, e.g. life satisfaction and (b) Experienced/ Affective well-being - a person's present or experienced state of well-being, e.g. positive and negative affect (Eger & Maridal, 2015; OECD Guidelines on Measuring Subjective Well-Being, 2013; Schulte et al., 2015). In this study, as per Diener (Diener, 2000), we define SWB as 'people's evaluations of their lives - evaluations that are both affective and cognitive'.

On the other hand, PWB is more about being able to realize one's potential. PWB or flourishing, grounded in a eudaimonic view of well-being, is characterized by self-acceptance, a sense of purpose in life, positive social relationships, competence, personal growth and engagement, i.e. positive social-psychological aspects of well-being beneficial to human functioning (Diener et al., 2010; Ryff, 1989). With growing emphasis on positive psychology, experts advocate that flourishing is not only the absence and opposite of mental health problems like anxiety and depression, but also the fundamental ingredient of a purposeful, meaningful and fulfilling life that leads to positive human development (Yildirim, 2019).

A large body of research showcases the positive influence of meditation practices in cultivating well-being and meaning in life on one hand and attenuating negative affect and anxiety on the other. The positive association between meditation practices on physiological and neurological characteristics has been extensively reported alongside underlying mechanisms, and evidence that personal spirituality is foundational to positive psychology traits for most people (Goleman & Davidson, 2017; H. Sharma, 2015; Barton & Miller, 2015).

While a few meta-analyses show positive effects of meditation practices on healthy subjects (Ospina et al., 2007), experts suggest that less focus has been given to study potential benefits of standardized meditation practices in healthy subjects (Chiesa & Serretti, 2009), more so the Indian meditation practices, which this study aims to address.

Hypothesis 1(a): Meditators (practitioners of Vipassana, Raja Yoga and SKY) are likely to show higher SWB (life satisfaction, positive affect), meaning in life and PWB (flourishing) than non-meditators.

Hypothesis 1(b): Meditators are likely to show lower negative affect than non-meditators.

Character strengths

Character Strengths represent positive, morally valued traits of personality that manifest through cognition, affect, volition and behaviour. They are relatively stable and generalizable across situations, but not rooted in inviolable genetic code. The typology developed by 54 leading scientists comprises 6 virtues (core characteristics that have been valued across time and cultures) with 24 corresponding strengths of character, regarded as the basic building blocks of human goodness (Peterson & Seligman, 2004; Niemiec, 2013). A significant movement within positive psychology is

building a fulfilling life by identifying and enhancing individual strengths of character, with a lot of research focusing on those character strengths associated with happiness or well-being (Peterson et al., 2007). This is in sync with Aristotle's view of eudaimonia: well-being is not a consequence but rather inherent in virtuous action; living according to one's virtues is the 'how' of achieving happiness (Aristotle, trans. 2000).

Developing virtues and living a wholesome life in accordance with those virtues is central to the three Indian meditation practices being studied. This is one of the primary reasons why these practices focus on the 'Art of living' to find peace and happiness from within, as righteous and wholesome actions (Dharma) lead to happiness, and sinful or unwholesome actions (Adharma) manifest in suffering (Singh, 2013). In case of Vipassana, developing 10 *Pāramīs* (perfections) is a pre-requisite for enlightenment, and Vipassana is incomplete without loving-kindness meditation - *mettā bhāvanā* - through which one develops goodwill towards fellow beings (Pāramīs: Vipassana Research Institute, 2010). Likewise, Raja Yoga and SKY offer spiritual understanding to remove the veil of ignorance, enable one to re-discover the virtues latent within each being and apply or leverage these positive qualities to realize one's potential and contribute to the society (Art of Living India, 2021; Raja Yoga Meditation, 2020). So just like a flower and its fragrance are inseparable, these meditation practices foster well-being with character strengths as the accompanying fragrance. Accordingly, in this paper we examine the influence of these meditation practices on five character strengths viz. hope, love, gratitude, zest and curiosity - that correlate highly with diverse measures of well-being and predict or foretell select measures in longitudinal studies (Park & Peterson, 2006a, 2006b).

Hypothesis 2: Meditators are likely to show higher character strengths (hope, love, gratitude, zest and

curiosity) as compared to non-meditators.

Lifetime duration of meditation

Regular practice of meditation sustained over time enables the effects to deepen. While each meditation practice may have distinct underlying mechanisms that drive the impact with associated neural activity/ changes in the brain, the benefits and effects documented for long-term meditators, who have clocked 1000 hrs. or more of practice, are robust (Goleman & Davidson, 2017; Wielgosz et al., 2016; Ferrarelli et al., 2013). Accordingly, in this study, we have categorized meditators with less than 1000 hrs. of practice as short-term meditators (STM) and those with 1000 hrs. or more of practice as long-term meditators (LTM).

Hypothesis 3: LTMs are likely to show higher well-being, meaning in life and character strengths than STMs.

Thus H1, H2 and H3 help examine the influence of Vipassana, Raja Yoga and SKY on well-being (SWB and PWB), meaning in life and character strengths in healthy subjects, along with the influence of duration of meditation. Life stage (Martínez-Martí & Ruch, 2014) and gender (Pinquart & Sörensen, 2001) may influence some of these variables, the relationship between them and their relative importance to the individual. Thus, age and gender are considered as covariates while examining these hypotheses.

Human Flourishing:

The absence of sadness is not happiness. Thus, as steered by His Holiness the Dalai Lama, Zen master Thich Nhat Hanh and other spiritual masters, several researchers have now turned their attention towards positive psychology and studying meditation rather than only focusing on mental disorders or negative emotions (Davidson & Begley, 2012; Fredrickson & Losada, 2005). So,

thriving is as, if not more, crucial as surviving. But what explains if people are flourishing (thriving) rather than just languishing (surviving)? With daily spiritual practice turning out to be the strongest predictor of 5 out of 6 domains of flourishing (Lee et al., 2021), the next hypothesis has been developed by identifying variables or constructs that explain or account for flourishing amongst meditators and non-meditators:

- (a) In establishing an integrated theoretical grounding of PWB, Ryff (1989) highlighted that self-acceptance has emerged as the most recurring criterion of well-being and is an integral attribute of self-actualization and optimal functioning. This aligns with the life span theories that underscore acceptance of self and embracing one's past life. Thus, satisfaction with life that stems from holding a positive attitude towards oneself is pivotal in explaining flourishing.
- (b) Presence of meaning or purpose in life is associated with the eudaimonic approach, as it offers a sense of direction and intentionality for optimal psychological functioning (Krok, 2015; Ryff, 1989). Meaning provides a way to accept reality, develop resilience in the face of adversity, and strive towards a goal in the future.
- (c) Positive affect kick-starts an upward spiral that fosters emotional well-being and fuels thriving (Fredrickson, 2001). Subsequently, Fredrickson and Losada (2005) showed that

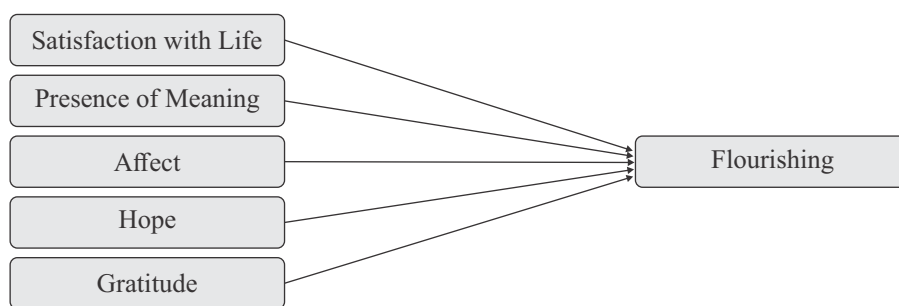
the positivity ratio (ratio of positive to negative affect) is a critical differentiator between individuals who flourish from those who don't. The results suggested that the mean positivity ratio (PA/ NA) was 2.9 or above for individuals classified as flourishing. Unlike previous research, the objective of this study is to determine the unique contribution of positivity ratio vis-a-vis positive affect while accounting for flourishing.

- (d) Thriving may be reinforced by gratitude that connects one positively to the past (through reinterpretation or cognitive reorientation by practising positive thinking) and facilitates integration (Kini et al., 2016; Wood et al., 2007). Gratitude gives one the eyes to see the unseen and experience the unfelt.
- (e) On the other hand, hope connects one happily and energetically to the future. It enables one to grow continually by looking forward to possibilities in the face of challenges. Hope consistently yielded the highest association (amongst the 24 character strengths) with well-being across all life stages represented by different age groups (Martínez-Martí & Ruch, 2014).

In view of the above, the next hypothesis examines what explains or accounts for flourishing:

Hypothesis 4: Satisfaction with life, presence of meaning, affect (PA and/or PA/ NA), hope and gratitude explain or account for flourishing amongst meditators and non-meditators; as shown in Figure 1.

Figure 1: Variables posited to account for flourishing



Methodology

A representative sample of 164 healthy adults, not affected by any disorders, participated in the study. Demographic characteristics (age, gender, marital

status, highest educational qualification, employment status) of the participants, both meditators (Med.) and non-meditators (Non-Med.) are given in Table 1.

Table 1: Demographic characteristics of participants

Variable	Non-Med. (n=84)	Med. (n=84)	t / χ^2	p
Gender - Female, Male	33, 51	39, 45	0.875	0.35
Marital Status - Single, Married	42, 42	41, 43	0.024	0.877
Employment - SE, Service, Student	6, 62, 16	12, 61, 11	2.934	0.231
Education - Dip., Grad., Post-Grad.	3, 26, 55	5, 24, 55	0.58	0.748
Age (yrs.)	m=32.2, min= 21, max=56, s=7.6	m=36.7, min=21, max=56, s=10.6	3.203	0.002
Technique – Vipassana, Raja Yoga, SKY	-	28, 28, 28	-	-
Duration of meditation (hrs.)	-	m=1400.9, min=60, max=5376, s=1362.3	-	-
Category of meditators – STM, LTM		46, 38		

Values are represented as mean, min, max, s.d. for age, duration of meditation and as count for all categorical variables
 Education - Diploma, Graduation, Post-Graduation; Employment - Self-employed (SE), Service, Student
 Category of meditators – Short-term meditators (STM) up to 1000 hrs; long-term meditators (LTM) \geq 1000 hrs.

Meditators were regular practitioners of three different techniques viz. Vipassana (n=28), Raja Yoga (n=28) and SKY (n=28), with varying lifetime duration of meditation (m=1400.9 hrs.), as shown in the table. The duration was computed based on the average number of hours of meditation practice per week. The inclusion criterion for meditators was a minimum period of three months of regular practice. Based on the aforementioned classification, there were 48 STMs and 36 LTMs. A cross-sectional design with

purposive sampling was employed for this study. Participation was entirely voluntary, with no requirement to reveal the identity. As discussed earlier, age and gender were treated as control variables.

Scales

Participants independently completed an online survey that leveraged previously developed and validated scales in English viz. Satisfaction with

Life (Diener et al., 1985), PANAS (Watson et al., 1988), Flourishing (Diener et al., 2010), Meaning

in Life (Steger et al., 2006) and VIA-72 (Peterson & Seligman, 2004).

Table 2: Details of scales administered

Construct	Scale (Developed by)	No of Items (Scale pts.)	Sample Item (Sub-Scale/ Factor)	Cronbach's alpha (Sub-Scale if any)
SWB (Evaluative)	Satisfaction with Life (Diener et al., 1985)	5 (7)	In most ways my life is close to my ideal	0.797
SWB (Affective)	PANAS (Watson et al., 1988)	20 (5)	Enthusiastic (PA – Positive Affect), Scared (NA – Negative Affect)	0.805 (PA), 0.876 (NA)
PWB	Flourishing (Diener et al., 2010)	8 (7)	I actively contribute to the happiness and well-being of others	0.811
Meaning in Life	Meaning in Life Questionnaire (Steger et al., 2006)	10 (7)	My life has a clear sense of purpose (PM – Presence of Meaning) I am searching for meaning in my life (SM – Search for Meaning)	0.868 (PM), 0.874 (SM)
Character Strengths	VIA-72 (Peterson and Seligman, 2004)	72 (5)	I always look on the bright side (Hope)	0.72 - 0.80 [^]

[^]Published by VIA Institute on Character (VIA-72 Psychometrics, 2021)

Table 2 shows details of each scale used in the study, including sample item and internal consistency coefficient of the scale calculated using Cronbach's alpha. In the case of the VIA-72 scale, anonymized item-level responses of all participants were sent to the VIA Institute on Character, who shared the scores on the character strengths. Accordingly, the Cronbach's alpha shown in the table is based on the published data (VIA-72 Psychometrics, 2021) for the five character strengths (hope, gratitude, love, curiosity and zest) analyzed in this study.

Statistical Analysis: MANCOVA, partial correlation and hierarchical regression analysis were conducted using SPSS version 26.

Results

To examine the mean differences between meditators and non-meditators wrt well-being and meaning in life [H1(a)], negative affect [H1(b)] and select character strengths [H2]; while controlling for age and gender as the covariates, MANCOVA was used. The suitability of MANCOVA was

evaluated by examining correlations between the dependent variables (DVs), normality and no multivariate outliers based on Mahalanobis distance. Having a balanced design, with an equal number of meditators and non-meditators (n=84 each), robustness to the assumption of homogeneity of covariance matrices was guaranteed (Tabachnick & Fidell, 2007). The sample size of 84 in each group was sufficient in light of the guidelines by Cohen (Cohen, 1992) that recommends n=64 in both groups at $\alpha = .05$ to detect a medium size difference with the necessary power.

A statistically significant MANCOVA was obtained, Pillais' Trace = .348, $p < .001$ with a multivariate effect size estimated at .348, which implies 34.8% of the variance in the linear combination of DVs was accounted for by group membership (meditators or non-meditators). Homogeneity of variances assumption was satisfied for all DVs using Levene's test ($p > 0.05$), except for presence of meaning ($p = .019$). However, having a balanced design with the larger standard deviation not being more than four times the corresponding

smaller standard deviation (for presence of meaning) suggests robustness of follow-up ANOVAs (Howell, 2010). The additional assumption of homogeneity of regression slopes for both covariates (age and gender) was met with insignificant interaction between DVs and each covariate ($p > .05$), except for hope and positive affect with gender as the covariate. However, the difference in the standardized beta weights

between the two groups in the case of both these variables was less than $|.40|$, indicating robustness to violation of homogeneity of regression slopes (Wu, 1984). As a follow up to MANCOVA, the series of follow-up ANOVAs conducted on each of the DVs were statistically significant, thereby supporting Hypotheses [H1(a), H1(b), H2 and H3], except for 'search for meaning' which was statistically insignificant as seen in Table 3.

Table 3: Influence of meditation practices on dependent variables (DVs): MANCOVA with effect size

Dependent Variable	Estimates			Med. vs Non-med.		Effect Size	
	Mean Med [^]	Mean Non-Med [^]	Std. Error	F	p	Cohen's d	Size*
Satisfaction with Life	26.392	22.810	0.558	19.939	0.000	0.700	M
Presence of Meaning	29.336	24.259	0.580	37.093	0.000	0.955	L
Search for Meaning	23.543	23.922	0.873	0.091	0.763	-	-
Flourishing	48.462	43.859	0.543	34.789	0.000	0.925	L
Positive Affect	41.386	37.912	0.530	20.836	0.000	0.716	M
Negative Affect	19.740	24.439	0.739	19.568	0.000	-0.694	M
Love	4.250	3.885	0.070	13.272	0.000	0.572	M
Curiosity	4.209	3.771	0.067	20.510	0.000	0.710	M
Gratitude	4.326	3.999	0.060	14.216	0.000	0.591	M
Hope	4.588	4.090	0.059	34.602	0.000	0.922	L
Zest	4.200	3.891	0.070	9.383	0.003	0.480	S

[^] Estimated means for meditators (Med) and non-meditators (Non-Med) adjusted for the co-variables age and gender ($n=168$)

* S – Small, M – Medium, L – Large effect size

As hypothesized, meditators reported significantly higher means, adjusted for the covariates, than non-meditators for all DVs relating to well-being, presence of meaning and character strengths, barring search for meaning. In contrast, meditators reported significantly lower adjusted mean for negative affect than non-meditators. Except for zest (small effect size: Cohen's $d = .480$), all statistically significant variables showed medium to large effect sizes (.572 to .955) as seen in Table 3.

MANCOVA was used, as above after all assumptions were met, to examine the mean differences between long-term meditators (LTMs) and short-term meditators (STMs) on all the DVs [H3]. Except for search for meaning and love

(statistically insignificant), as hypothesized, LTMs reported significantly higher well-being, presence of meaning and character strengths than STMs, and lower negative affect than STMs; with effect sizes (Cohen's d) in the range of .454 to 1.013 as seen in Table 4. Additionally, partial correlation (r_p) between duration of meditation and each DV, controlled for age and gender, was computed for the meditators ($n=84$, $df=80$). Except for search for meaning, r_p was statistically significant ($p < .05$ for love and $p < .01$ for all other DVs) with a respectable magnitude, i.e., pronounced positive association between duration of meditation and well-being, presence of meaning and character strengths (r_p : .245 to .432), and negative association with negative affect ($r_p = -.487$) as seen in Table 4.

Table 4: Influence of duration of meditation on DVs: MANCOVA with effect size and partial correlation

Dependent Variable	Estimates		LTM vs STM		Effect Size		Correlation
	Mean LTM [^]	Mean STM [^]	F	p	Cohen's d	Size	r _p [#]
Satisfaction with Life	28.936	24.727	13.497	0.000	0.823	L	0.410**
Presence of Meaning	31.248	27.969	11.718	0.001	0.767	M	0.385**
Search for Meaning	21.494	24.874	3.001	0.087	-	-	-0.207
Flourishing	50.763	46.848	16.812	0.000	0.919	L	0.395**
Positive Affect	42.414	40.289	4.106	0.046	0.454	S	0.310**
Negative Affect	16.238	22.195	20.443	0.000	-1.013	L	-0.487**
Love	4.369	4.166	2.597	0.111	-	-	0.245*
Curiosity	4.365	4.039	5.665	0.020	0.533	M	0.363**
Gratitude	4.581	4.158	15.826	0.000	0.891	L	0.432**
Hope	4.725	4.466	7.375	0.008	0.609	M	0.380**
Zest	4.389	4.070	5.581	0.021	0.530	M	0.338**

[^] Estimated means for long-term (LTM, n=38) and short-term (STM, n=46) meditators adjusted for the co-variables

[#] r_p: Partial correlation between duration of meditation and DV controlled for age & gender for meditators (n=84, df=80)

*p<0.05, **p<0.01

Hierarchical regression was performed to test Hypotheses 4 to determine what explains or accounts for flourishing. The suitability of regression was evaluated by examining the assumptions relating to homoscedasticity, normal distribution of residuals, linearity and no outliers based on Cook's distance in both cases. The sample size of 168 was found to be sufficient in light of the discussion by Green (Green, 1991): $N \geq 104 + k$ or $N \geq 50 + 8k$ with k independent variables (IVs).

A 3-step hierarchical regression analysis was performed to examine the unique contribution of each IV, in explaining flourishing, in the presence of other IVs that were entered in subsequent steps

with corresponding changes in R². As seen in Table 5, all 3 models were statistically significant viz. Model 1: $F(3, 164) = 22.99, p < .001, R^2 = .296, \text{Adj. } R^2 = .283$, Model 2: $F(5, 162) = 27.938, p < .001, \Delta R^2 = .167, \text{Adj. } R^2 = .446$ and Model 3: $F(8, 159) = 32.605, p < .001, \Delta R^2 = .158, \text{Adj. } R^2 = .602$. All VIF values were less than 4, indicating absence of multicollinearity among IVs in all the models (Pan & Jackson, 2008).

As expected, age and gender (treated as control variables) were insignificant, while satisfaction with life and presence of meaning were statistically significant ($p < .05$) in all three models.

Table 5: Hierarchical regression analysis to explain Flourishing

	Independent Variable	Beta	t	p	r_{sp}^{\wedge}	VIF
Step 1	Age	0.096	1.421	0.157	0.093	1.058
	Gender	0.016	0.237	0.813	0.016	1.016
	Satisfaction with Life	0.515	7.591	0.000	0.497	1.074
$F(3, 164) = 22.99, p < .001, R^2 = .296, \text{Adj. } R^2 = .283$						
Step 2	Age	0.034	0.571	0.569	0.033	1.081
	Gender	-0.006	-0.100	0.921	-0.006	1.024
	Satisfaction with Life	0.301	4.503	0.000	0.259	1.351
	Presence of Meaning	0.331	4.982	0.000	0.287	1.335
	Ratio: PA/ NA	0.226	3.435	0.001	0.198	1.309
$F(5, 162) = 27.938, p < .001, \Delta R^2 = .167, \text{Adj. } R^2 = .446$						
Step 3	Age	0.055	1.060	0.291	0.052	1.130
	Gender	-0.014	-0.283	0.777	-0.014	1.026
	Satisfaction with Life	0.296	5.100	0.000	0.249	1.413
	Presence of Meaning	0.126	2.033	0.044	0.099	1.610
	Ratio: PA/ NA	0.053	0.884	0.378	0.043	1.514
	Positive Affect	0.243	4.171	0.000	0.204	1.420
	Hope	0.213	3.407	0.001	0.166	1.635
	Gratitude	0.184	2.853	0.005	0.139	1.749
$F(8, 159) = 32.605, p < .001, \Delta R^2 = .158, \text{Adj. } R^2 = .602$						

$^{\wedge} r_{sp}$: semi-partial correlation

Interestingly, the positivity ratio PA/ NA that was statistically significant in model 2 ($p < .05$) turned out to be insignificant in model 3 in the presence of statistically significant IVs viz. PA, hope and gratitude. Thus, up to 60.2% of the variance in flourishing ($\text{Adj. } R^2 = .602$ for model 3) was explained by satisfaction in life, positive affect, hope, gratitude and presence of meaning (in the descending order of positive beta for significant IVs) as shown in Table 5.

Discussion

This is a unique evidence-based study to examine the influence of select Indian meditation practices (Vipassana, Raja Yoga and SKY) on well-being (SWB and PWB), associated character strengths and meaning in life. The study's second goal was to determine what explains or accounts for

flourishing. In general, the results were consistent with the previous findings that aided in developing the hypotheses. Overall, all four hypotheses were supported.

Meditators reported significantly higher SWB (satisfaction with life, positive affect), PWB (flourishing), presence of meaning in life, and character strengths (hope, gratitude, curiosity, zest and love), and significantly lower negative affect as compared to non-meditators, with medium to large effect sizes except for zest that showed a small effect size.

Impact of sustained practice

A partial correlation (r_p) of .15 to .20 is considered respectable in terms of magnitude (Hunsley & Meyer, 2003). In this study, the influence of

meditation was marked with a significant positive association (partial correlation controlled for age and gender) between the duration of meditation and all afore-mentioned variables on which meditators reported significantly higher scores, and a negative association with negative affect (r_p : $|.245$ to $.487|$, $p < .05$). Same pattern of statistically significant results was seen while comparing LTMs with STMs, except for love as discussed below. Overall results are consistent with the findings that lifetime meditation hours significantly deepen the effects and alter traits with pronounced shifts in measurable brain activity (Goleman & Davidson, 2017). Notably, some of the effects seem to be more strongly enhanced by the intensive practice during retreats than daily practice. The retreat enables one to focus for prolonged periods in a conducive atmosphere with no/ minimal distractors or stressors (Wielgosz et al., 2016). However, this needs further investigation for each practice, as the evidence is inconclusive.

As a character strength, love denotes the extent to which one values close relationships with other people and contributes to the closest and warmest relationships with reciprocity - loving and accepting love (Peterson & Seligman, 2004). In this study, LTMs reported a slightly higher score on love than STMs, though not significant. Perhaps these meditation practices cultivate love that is selfless, boundless and unconditional. As love is an innate virtue or quality of the soul, such love is not limited to intimate relationships, and it need not be reciprocal. Instead, one may experience or radiate love and compassion even for a person who may be misbehaving (Hart & Goenka, 2011; Verma, 2019). Phenomenological analysis may shed greater light.

Quest for meaning in life

In this study, meditators reported a significantly higher presence of meaning (large effect size) but slightly lower search for meaning (though not significant) than non-meditators. Presence of

meaning also accounted for variance in flourishing. This is consistent with the evidence for a robust positive association between presence of meaning in life and both SWB and PWB, while search for meaning has no association with PWB (Krok, 2015; Li et al., 2021) and conditional association with SWB (Steger et al., 2006).

Further, the results revealed an opposite trend i.e., a negative association between duration of meditation and search for meaning ($r_p = -.207$, $p = .062$), but a positive association between duration of meditation and presence of meaning ($r_p = .310$, $p < .01$). Likewise, LTMs reported a slightly lower search for meaning (though not significant), but a higher presence of meaning (medium effect size) than STMs. The results are in sync with prior longitudinal analysis, showing a decreasing trend (only marginally significant) in search for meaning but a significant increase in presence of meaning amongst the meditators over time (Bloch et al., 2017).

Search for meaning is not always rooted in one's life feeling meaningless, and there is considerable variability in the reported scores (Steger et al., 2006; Bloch et al., 2017). Thus, as found in this study, it is likely that as long-term meditators progress on the path, they perceive their lives to be more meaningful, and their search (quest) for higher-order meaning might last as they penetrate from the gross to the subtler to the ultimate reality through sustained practice (Hart & Goenka, 2011). The idiographic journey of each meditator may account for variability in scores of search for meaning.

Positivity ratio and flourishing

Reviews converge, as researchers assert, that 'bad is stronger than good', with hardly any exceptions. While this does not mean that bad will always win over good, it implies that negatively valenced experiences and emotions will have a greater

impact on an individual than positively valenced of the same type (Baumeister et al., 2001; Fredrickson & Losada, 2005). This has been evidenced in this study with a very high correlation between NA and NA/ PA ($r=.907$) as compared to a moderate correlation between PA and PA/ NA ($r=.394$) for all participants ($n=168$). Previous results predicted that positivity ratio PA/ NA at or above 2.9 is associated with human flourishing (Fredrickson & Losada, 2005). Accordingly, while examining H4 using hierarchical regression analysis, positivity ratio PA/ NA was found to be statistically significant in model 2 (see Table 5) and accounted for variance in flourishing. Participants above the threshold of 2.9 ($n=26$ of which 23 were meditators) reported significantly higher adjusted (for age and gender) mean score on flourishing ($m=50.281$) than those below the threshold ($m=45.406$) with a large effect size ($p<.001$, $d=.949$). Yet a key question to be examined is what accounts for flourishing amongst participants ($n=31$ of which 21 were meditators) who reported positivity ratio below the threshold of 2.9, but still reported flourishing scores at par (≥ 50)?

Perhaps the positivity ratio PA/ NA is not sufficient to precisely predict human flourishing. While research suggests that this ratio or 'affect balance' may predict SWB, it has been advised to study PA and NA separately to avoid any loss of information as different results may emerge based on antecedents, consequences and correlates of these two types of affect (Diener, 2000). As bad is stronger than good, the implication is to overpower the toxicity of negative affect and foster flourishing. Thus, it is essential to examine if character strengths offer augmented value in overcoming the toxicity while accounting for flourishing. There is evidence that character strengths provide incremental value over and above positive affect in predicting resilience (Martínez-Martí & Ruch, 2017). Specifically, hope and gratitude, alongside life satisfaction, were reported as the critical predictors of PWB (Kardas

et al., 2019). Hope had also consistently ranked first (amongst 24 character strengths) in relationship with diverse indicators of well-being across age groups (Martínez-Martí & Ruch, 2014).

Accordingly, in this study, the combination of positive affect in concomitance with hope and gratitude turned the tables on mere positivity ratio PA/ NA. The combination accounted for an additional 15.8% variance (ΔR^2) in flourishing, as witnessed in model 3.

Implications and Contribution

The results of this study have three critical implications/ contributions for theory and practice:

- (a) *Self-sufficiency and sustainability*: All three practices are universal (non-sectarian and not concerned with any 'ism') and accessible across the globe for all ages for free or at a token cost. Individuals are free to practice anytime, anywhere and on their own. The enhanced benefits of sustained practice are valuable, and many of the health benefits are by-products with higher primary goals like enduring peace and happiness that are relevant to every being.
- (b) *Adoption at the workplace*: Mental illness accounts for an economic impact of US\$ 1 trillion per year in lost productivity as reported by WHO (10 Facts on Mental Health, 2019). The effect gets accentuated with 37% of employees, as McKinsey (2021) reported, indicating that they would avoid any treatment because of the stigma attached. With WHO encouraging the use of traditional yoga and meditation practices, and leading organizations like Google promoting meditation-based training program 'Search Inside Yourself' (Tan, 2015), results of this study gain prominence given the participant demographics (84% working professionals and 16% students, all in the working age group: 21

to 56 yrs.). Furthermore, the results indicate that participants are likely to experience greater work satisfaction, as four character strengths, viz. hope, gratitude, curiosity, and zest correlate highly with work satisfaction across occupations (Peterson et al., 2010).

- (c) *Virtuous circle(s)*: Research points to synergetic mutual interaction between character strengths and mindfulness, creating a virtuous circle (Niemi et al., 2012). As cultivating virtues or character strengths is integral to these practices, such upward spirals, if any, need to be investigated for each meditation practice.

Limitations and Future Direction

The use of self-report measures that relies on each participant's self-insight is a limitation of this study. The shorter version VIA-72 was used to measure character strengths to reduce survey fatigue. Consequently, three character strengths reported relatively lower internal consistency with Cronbach's alpha in the range of 0.72 to 0.74, though it met the minimum acceptable level of .70 (Nunnally & Bernstein, 1994).

The present findings are limited by the cross-sectional design of this study. Categorization of meditators as LTMs and STMs (based on lifetime duration of meditation) may be validated for each practice with a larger sample size.

The one-of-a-kind 'ReSource project' highlights that different meditation practices (breathing meditation, body scan, loving-kindness meditation, observing-thought meditation) may offer common beneficial effects, and each practice is characterized by a distinct psychological fingerprint (Kok & Singer, 2017). While this study sheds light on relevant common benefits, advanced designs may be employed for robust inferences on causality or path-analysis, or comparative analysis

between meditation practices.

There is value in leveraging mixed methods design (Huynh et al., 2019) to unravel the essence, capture the intricacies of meditative experiences, and investigate the unique contribution of sustained practice or intensive retreat practice vis-à-vis daily short-duration practice (Ferrarelli et al., 2013). This will address the dearth of such studies on Indian meditation practices and reflect their distinctiveness, given the recent trend towards commoditization and commercialization of meditation practices in the West (Khong, 2021), thereby making the proclamation by Swami Vivekananda a reality for the greater good.

Conclusion

Overall, this study provides novel evidence of the significant positive influence of globally accessible and non-sectarian Indian meditation practices (viz. Vipassana, Raja Yoga and SKY) on well-being, meaning in life and character strengths. Interestingly these practices focus on the 'Art of living' and target entire humankind with several benefits arising as the by-products. This study also sheds light on what explains or accounts for human flourishing. Further research, ideally mixed methods, is needed to elucidate the pathways unique to each meditation practice while illuminating the underlying mechanisms and capturing the essence of the lived experiences. This may empower individuals across the globe to choose their path and shape policies to enhance adoption and maximize impact at the level of society.

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