Impact of Vipassana Mindfulness Meditation on Well-being During the Pandemic

Nikhil Mahindroo & Manjari Srivastava

This study examined the impact of Vipassana mindfulness meditation (MM) and the underlying mechanisms through which it exerts a positive effect on dimensions of subjective well-being. One hundred eighty healthy professionals completed the pre-intervention and post-intervention online surveys during the COVID-19 pandemic. The experimental group (n=90) attended their first 10 days Vipassana MM course in India, while the control group (n=90) got acceptance but could not attend the same. 2 x 2 mixed design MANCOVA and serial multiple mediation models (PROCESS macro) were used for statistical analysis. Group x time interaction effect indicated that Vipassana MM led to significant enhancement in subjective well-being (SWB), trait emotional intelligence (EI), presence of meaning (PM) and mindfulness vis-à-vis the control group.

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Introduction

In an HBR article, Chade-Meng Tan (2015), who led the creation of a mindfulness-based emotional intelligence program called 'Search Inside Yourself' at Google (Tan, 2014), explained how mindfulness could make you more effective; in 'just 6 seconds'. Two years since, Van Dam and colleagues (2017) urged scientists, media and the public to 'Mind the hype' in their critical evaluation and prescriptive agenda for research on mindfulness and meditation. Two years hence, the tweet from the then CEO of Twitter (Jack Dorsey [@jack], 2019) read, "Finished my 3rd vipassana 10 days at Dhamma Pataka in South Africa. Continues to be the toughest and best thing I do for myself…" Two years hence, the WHO (2021), in the Comprehensive Mental Health Action Plan 2013–2030, explicitly encouraged using evidence-based traditional practices like yoga and meditation to pro-

mote mental health and well-being for all. So, does mindfulness wield a positive impact at the level of individual, organization and society? This becomes pertinent at a time when the United Nations (2021) asserts that the COVID-19 pandemic has halted or reversed a decade of progress in health. This study aims to investigate the impact ('what' and 'how') of Vipassana mindfulness meditation.

Unfolding Mindfulness

The word mindfulness derives from the Pali word 'sati', which can be found in the early Buddhist scriptures such as Abhidhamma. Right mindfulness (*sammâ sati*) is the seventh factor of the noble eightfold path as taught by the Buddha (Bodhi, 2000; 2011). Roots of modern-day mindfulness-based interventions (MBIs) like mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT) can be traced to Vipassana and Zen meditation, which are rooted in the teachings of the Buddha (Chiesa & Malinowski, 2011; Gilpin, 2008; Rapgay & Bystrisky, 2009). Consciously blending different elements, "MBSR is mostly Vipassana practice…with a Zen attitude" (Kabat-Zinn's email cited in Gilpin, 2008: 238).

As the names suggest, MBSR was developed initially to manage chronic pain and stress-related disorders, while MBCT was developed within the field of cognitive behavioral therapy (Gilpin, 2008). The objective was to make the practice "relevant and compelling in the lives of the participants, yet without denaturing the dharma dimension" (Kabat-Zinn, 2003: 149). MBSR & MBCT have since been the two most widely employed and investigated MBIs (Gu et al., 2015). So it is understandable and evident from the bibliometric analysis (Wang et al., 2021), meta-analyses (Chiesa & Serretti, 2009; Grossman et al., 2010; Khoury et al., 2013; 2015; McClintock et al., 2019) and systematic/integrative reviews (Gu et al., 2015; Schlechta Portella et al., 2021; Shahbaz & Parker, 2021) that [a] most research over the past few decades has been on MBIs (especially MBSR and MBCT) [b] majority of the research initially focused on clinical settings and associated outcomes and [c] there is an absence of consensus on meaning, definition and operationalization of mindfulness (Van Dam et al., 2017).

There is an almost total absence of studies investigating the mechanisms that underlie Vipassana and Zen meditations.

Consequently, this study endeavors to address the gap that was succinctly highlighted by Chiesa & Malinowski (2011: 416), "there is an almost total absence of studies investigating the mechanisms that underlie Vipassana and Zen meditations," and that less attention has been accorded on the possible benefits in healthy subjects (Chiesa & Serretti, 2009). With ever-growing evidence of the positive impact of mindfulness (mainly MBIs) on workplace outcomes (Janssen et al., 2018; Shahbaz & Parker, 2021);

including the pivotal role that mindfulness can play in fostering well-being during the Covid-19 pandemic (Sanilevici et al., 2021; Toniolo-Barrios & Pitt, 2021), the objective of this study is to investigate the (causal) impact and unearth the underlying mechanisms through which Vipassana meditation may exert a positive effect on various dimensions of subjective well-being in healthy professionals during the COVID-19 pandemic.

Vipassana Meditation

Vipassana, as taught by S. N. Goenka in the tradition of Sayagyi U Ba Khin, is a meditation practice based on the teachings of the Buddha. The standardized 10-days residential course is offered at 225 centers and 136 non-centers across the globe for free. Vipassana, which means to 'see things as they really are', enables the practitioner to experientially realize the nature of reality, i.e. changing and impermanent (Hart, 2011; *Vipassana Meditation*, 2018). Vipassana meditation is often referred to as 'mindfulness meditation' or 'MM' (Chiesa & Malinowski, 2011). Vipassana MM trains one in *sila* (virtue), *samadhi* (concentration), and *paññâ* (wisdom), that encompasses the threefold division of the noble eightfold path leading to liberation from suffering (Hart, 2011; Nyanaponika, 1962). As explicated by S. N. Goenka, "The Buddha never taught any 'ism' or sectarian doctrine. He taught something from which people of every background can benefit: an art of living" (Hart, 2011 : 18). Previous research indicates that Vipassana MM is associated with reduced mental disorders and enhanced tolerance to stress (Chiesa, 2010), increased well-being and mindfulness (Szekeres & Wertheim, 2015), improved workplace outcomes like employees' well-being and communication skills (Pradhan & Ajithkumar, 2018; 2019) and neuroplastic changes underpinning cognitive processing and enhanced states of well-being (Kakumanu et al., 2019).

Dimensions of Subjective Well-being

Subjective well-being (SWB) is a multifaceted construct comprising affective and cognitive components (Diener, 2000). Affective well-being refers to the frequency and intensity with which one experiences affect (positive and negative), while cognitive well-being refers to reflective assessment or cognitive judgment of one's sense of the quality of life, e.g. life satisfaction (Luhmann, 2017; Schulte et al., 2015). There is an increased focus on interventions, including MBIs, that can enhance SWB amongst healthy professionals, as SWB is associated with work engagement (Cameron & Spreitzer, 2012) and crucial workplace outcomes such as higher performance, job satisfaction, and productivity (Sakuraya et al., 2020).

Mechanisms to Enhance SWB

Enhanced levels of mindfulness are associated with positive outcomes in several life domains, including health (physical, mental), vitality, satisfaction (life and job), self-concept, emotional intelligence and relationships (Brown et al., 2007; Eberth & Sedlmeier, 2012; Schlechta

Portella et al., 2021). It has been established that mindfulness is associated with and predicts enhanced SWB (Brown & Ryan, 2003; Brown et al., 2009).

There is evidence that trait emotional intelligence mediates the relationship between mindfulness and both the dimensions of SWB (Schutte & Malouff, 2011; Coffey et al., 2010). This is consistent with substantial research that sheds light on the connection between mindfulness and emotional intelligence (Baer et al., 2006; Brown et al., 2007; 2009; Charoensukmongkol, 2014), and that higher levels of emotional intelligence is associated with and predicts enhanced subjective well-being - both affective and cognitive (Schutte et al., 2002; Brackett et al., 2004; Austin et al., 2005).

In a recent meta-analysis of correlational studies and RCTs, Chu and Mak (2020) indicated that mindfulness correlated with meaning in life, and showed how MBIs had a positive effect on the presence of meaning in life. Previous research also shows that meaning in life is positively associated with and predicts life satisfaction viz. cognitive well-being (Halama & Dìdová, 2007; Ho et al., 2010). The role of meaning in life is vital in coping with uncertainty and promoting hope amongst employees during the Covid-19 pandemic (Miao et al., 2021).

Gu and colleagues (2015) emphasized that a pertinent question on how MBIs work is to examine if the effect on psychological outcomes is mediated (simple/ multiple mediation) by an increase in mindfulness? Given the vast differences between MMs and MBIs (Chiesa & Malinowski, 2011) and challenges in operationalizing and measuring mindfulness (Van Dam et al., 2017), this question warrants examination.

There is a dearth of causal studies that examine the specific and serial indirect effects of MMs on [a] affective well-being via mindfulness and trait emotional intelligence, [b] cognitive well-being via mindfulness and trait emotional intelligence as well as the presence of meaning. This study aims to address this gap, i.e., examining the impact ('what' and 'how') of Vipassana MM in healthy professionals during the COVID-19 pandemic.

Participants

One hundred eighty healthy professionals participated in this study during the pandemic. They were engaged as a part of the experimental group (n=90) and control group (n=90). Purposive sampling was used with well-defined inclusion criteria: [a] Working professionals - in service or self-employed [b] Age between 20 and 59 yrs. Participants were excluded if they met any of the following criteria: [a] Attended any Vipassana MM course in the past [b] Practicing any other meditation technique [c] Have or had (self-reported) any mental health disorder.

Table 1 shows the demographic characteristics. As seen, there was no significant difference in the participants from both the groups.

Table 1: Group-wise Demographic Characteristics of Participants

Characteristic	Control (n=90)	Vipassana MM (n=90)	t /χ^2	p
Gender - Female, Male	28, 62	29, 61	0.03	0.87
Marital Status - Single, Married	35, 55	25, 65	2.5	0.11
Employment - Service, Self-employed	61, 29	54, 36	1.18	0.28
Education - Graduate, Post-Graduate	38, 52	30, 60	1.51	0.22
Age: mean (SD)	37.63 (8.93)	39.16 (9.40)	1.11	0.27
min – max (yrs.)	24 - 59	23 - 58		

Design

Vipassana MM, as taught by S. N. Goenka, follows the standardized protocol across the globe as highlighted in the code of discipline (*Vipassana Meditation - Introduction*, 2018). On account of the rigor of the 10-days Vipassana course (10+ hrs. of meditation each day, requirement to observe noble silence and five precepts) and philosophy (self-purification suits only those having the intention to work diligently), it would not be practical, ethical or efficacious to compel someone, as per random assignment, to attend their first 10 days Vipassana MM course as a part of the experimental group. Moreover, Shapiro (1992) found that the outcomes of meditation practice are related to the subject's intention or goals (you get what you want). Unlike MBIs, Vipassana MM aims at liberation from human suffering common to the whole of humankind and developing *mettâ bhâvanâ*, i.e. loving-kindness towards others (Chiesa & Malinowski, 2011; Hart, 2011).

Thus, consciously, a quasi-experimental (QE) design that has all of the features of an experimental design except random assignment (Kirk, 2013) was deployed. The following thoughtfully chosen design features, as recommended by Shadish and colleagues (2002), were incorporated in the QE design to aid causal inferences by mitigating the risks to validity: [a] Participants in both the groups (experimental and control) had the intention to practice Vipassana MM, [b] Control group participants did not practice any form of meditation (Freedland et al., 2011), [c] Positive affect (PA) and negative affect (NA) acted as non-equivalent dependent variables. Accordingly, prospective participants identified for the experimental group were those who had got the acceptance to attend their first 10 days Vipassana MM course scheduled between Dec. 2020 and Apr. 2021 at select centers in and around Mumbai, India. On the other hand, those identified for the control group had signed up for their first 10-days course and got acceptance from similar centers/ period; but could not attend that course and still had the intention to participate in one.

To reduce social desirability/ response bias on account of self-report measures, anonymity was maintained through a confidential identifier (Shapiro et al., 1998).

Procedure

With the help of the Vipassana Research Institute, an invitation was sent by email to prospective participants who

met the above-mentioned criteria. Details of the online survey were sent by the institute to only those who gave their consent and were willing to complete all the surveys over time with no favor or reward in return. Similar instructions were given to both groups.

Participants in the experimental group completed the pre-intervention survey (T0) about 10 days before the commencement of the intervention. As they observed noble silence and were completely cut-off from the world during the course, the post-intervention survey (T1) was sent to them 3 weeks after completion of their first 10-days Vipassana MM course; to enable them to [a] transition from an intensive course held in special conditions to the busyness of everyday normal social life (Falkenström, 2010) and [b] experience and observe changes (if any) and objectively report at T1. To match the time gap, a duration of 6 weeks was planned between T0 and T1 in the case of the control group.

Measures

Participants independently completed an online survey at T0 and T1 comprising the following scales in English viz. PANAS (Watson et al., 1988), Satisfaction with Life (Diener et al., 1985), Meaning in Life Questionnaire (Steger et al., 2006), TEIQue – SF (Petrides, 2009), and FFMQ (Baer et al., 2008). Table 2 shows the details of each scale used in the study, Cronbach's alpha values at T0 and T1 respectively and a sample item.

Table 2 Details of Scales Administered at T0 &T1

Construct	Scale	No of Items (Scale pts.)	Cronbach's alpha (T0, T1)	Sample Item (Sub-Scale)
Affective well-being	PANAS	20 (5)	0.90, 0.91 (NA) 0.85, 0.89 (PA)	Scared (NA – Negative Affect), Enthusiastic (PA – Positive Affect)
Cognitive well-being	Satisfaction with Life	5 (7)	0.86, 0.86	In most ways my life is close to my ideal
Presence of Meaning	Meaning in Life Questionnaire	5 (7)	0.88, 0.93	My life has a clear sense of purpose (Presence of Meaning)
Trait Emotional Intelligence	TEIQue-SF	30 (7)	0.91, 0.92	I usually find it difficult to regulate my emotions (SC - Self Control)
Mindfulness	FFMQ (Five Facet Mindfulness Questionnaire)	15 (5)	0.80, 0.83	When I have distressing thoughts or images, I just notice them and let them go (Non-reactivity)

To compute the total scores on mindfulness at T0 and T1, the 'Observing' facet in FFMQ was excluded, as recommended in the case of experimental design (Gu et al., 2016). This total score (combined scores on other four facets) was used during statistical analyses.

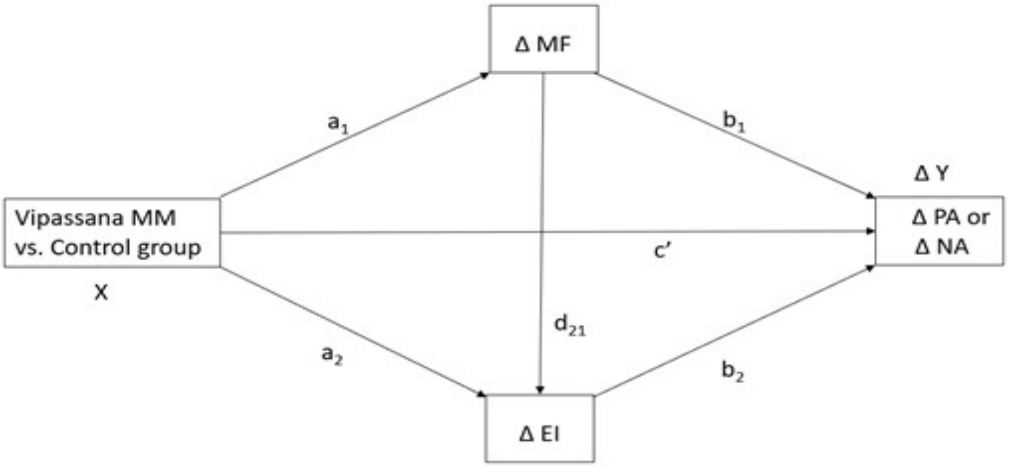
Control Variables: As per the extant literature, age and gender (Martínez-Martí & Ruch, 2014; Kong & Zhao, 2013; Petrides & Furnham, 2006) were controlled for and used as covariates.

Statistical Analyses Strategy

To study the impact of Vipassana MM on each dependent variable (DV) viz. positive affect (PA), negative affect (NA), life satisfaction (LS), trait emotional intelligence (EI), presence of meaning (PM) and mindfulness (MF), a 2x2 mixed design MANCOVA (Kirk, 2013; Verma, 2016) was used. The analysis was conducted in SPSS v26. Group (Vipassana MM vs. control) x time (pre-intervention at T0 vs post-intervention at T1) interaction effect was analyzed and effect size (Cohen's d) was computed, with age and gender as covariates.

Mediation analysis was used to uncover the underlying processes that causally link Vipassana MM to dimensions of subjective well-being (PA, NA and LS). Path diagram 1 (Fig. 1) was used to investigate the effect of Vipassana MM (X) on change (post minus pre-intervention scores) in affective well-being viz. increase in positive affect ($\Delta Y = \Delta PA = PA_{T1} - PA_{T0}$) and decrease in negative affect ($\Delta Y = \Delta NA$), separately, through changes in mediators viz. increase in mindfulness (ΔMF) and emotional intelligence (ΔEI).

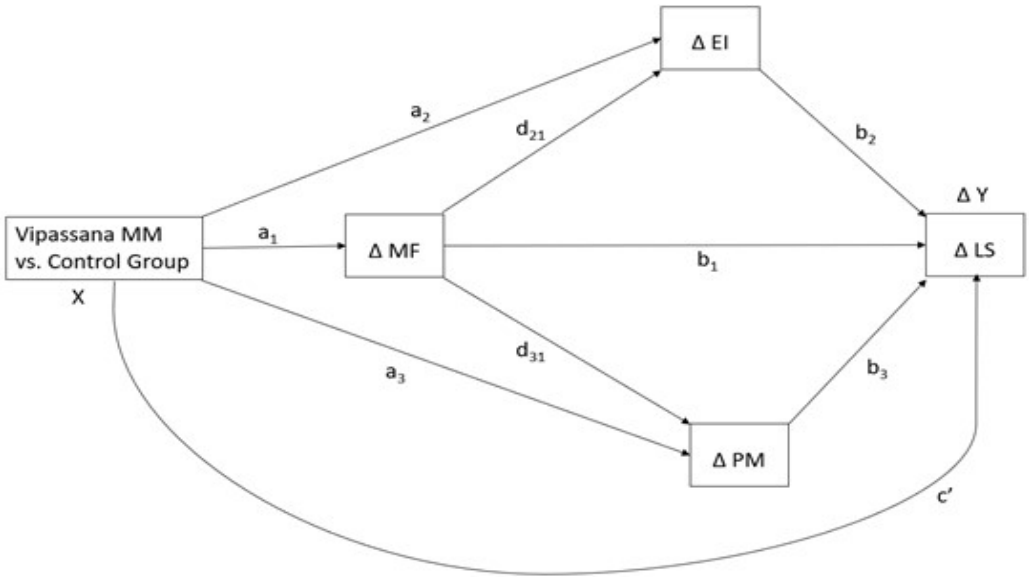
Fig. 1 Serial Multiple Mediator Model to Examine the Effect of Vipassana MM (X) on Change in Affective Well-being



Likewise, path diagram 2 (Fig. 2) was used to investigate the effect of Vipassana MM (X) on the increase in life satisfaction ($\Delta Y = \Delta LS$) through changes in mediators viz. increase in mindfulness (ΔMF), emotional intelligence (ΔEI) and presence of meaning (ΔPM).

Age and gender were incorporated as covariates, though not shown in both the path diagrams to save space and improve clarity.

Fig. 2 Serial Multiple Mediator Model to Examine the Effect of Vipassana MM (X) on Change in Cognitive Well-being



Serial multiple mediation analysis was conducted using PROCESS macro (Hayes, 2022, version 4) in SPSS v26. Recommendations by Fairchild & McDaniel (2017) were followed in reporting.

Results

Out of the 236 participants who consented to participate in the study, 180 completed the online surveys at pre-intervention (T0) and post-intervention (T1), with no missing data. Attrition analysis conducted using t-test revealed no significant baseline difference between dropouts and nondropouts on any measure.

Intercorrelations

In line with the earlier research, significant correlations were found between the study dependent variables at T0 (Table 3).

Table 3 Correlations Between Study Variables at Pre-intervention (T0)

	Variables	1	2	3	4	5
1	Mindfulness† (MF)	1				
2	Positive Affect (PA)	.373***	1			
3	Negative Affect (NA)	-.512***	-.244**	1		
4	Life Satisfaction (LS)	.387***	.259***	-.449***	1	
5	Presence of Meaning (PM)	.323***	.352***	-.238**	.403***	1
6	Emotional Intelligence (EI)	.686***	.443***	-.629***	.521***	.388***

** p<0.01; *** p<0.001

Impact of Vipassana MM

Results showed that the group x time interaction effect was significant ($p<0.001$) for each DV viz. PA, NA, LS, EI and MF. Group-wise estimated means at T0 and T1 alongside effect sizes (Cohen's d) are detailed in Table 4. Effect sizes for improvement (decrease in NA and increase in other DVs) are denoted with a positive sign, in sync with the extant convention. As seen in Table 4, Vipassana MM led to significant increase in PA (d=0.39), LS (d=0.71), PM (d=0.82), trait EI (d=0.87) and MF (d=0.79), and decrease in NA (d=0.91).

Table 4 Group x time Interaction Effect: Estimated Means at T0 & T1 & Effect Sizes

DV	T0 (Pre intervention)			T1 (Post intervention)			Interaction	Effect size(Cohen's d)	
	Mean† (Ctrl.)	Mean (Exp.)	S.E.	Mean (Ctrl.)	Mean (Exp.)	S.E.	F (1, 176)	Exp.	Ctrl.
PA	37.81	36.68	0.58	36.53	38.92	0.62	20.50***	0.39	-0.22
NA	23.30	24.39	0.82	23.28	17.80	0.70	46.82***	0.91	—
LS	22.46	21.76	0.57	22.26	25.42	0.52	28.06***	0.71	—
PM	23.70	22.74	0.63	23.25	27.42	0.57	36.13***	0.82	—
EI	4.61	4.58	0.08	4.59	5.18	0.07	56.88***	0.87	—
MF	3.15	3.05	0.06	3.21	3.47	0.06	19.73***	0.79	—

*** $p<0.001$

† Estimated means and standard errors (S.E.) are computed with age and gender as the covariates

Further, simple main effect (SME) between-subjects analysis showed that at T0 there was no significant difference between the two groups on any DV viz. PA (p=0.17), NA (p=0.35), LS (p=0.39), PM (p=0.28), EI (p=0.83), MF (p=0.24), signifying little likelihood of initial selection bias on account of non-randomization (Shadish et al., 2002).

The results provide strong evidence for a significant positive impact of Vipassana MM on well-being, trait EI, presence of meaning and mindfulness in healthy professionals during the pandemic.

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Serial Mediation

Serial mediation analysis was conducted using PROCESS macro as detailed above and bootstrap confidence intervals (LLCI and ULCI) were determined from 10,000 bootstrapped samples. Direct effects are displayed in Figs. 3, 4 & 5, and indirect effects are reported in Tables 5 & 6, respectively. As seen, there was evidence of an indirect effect of Vipassana MM via increase in trait EI on enhanced subjective well-being viz. increase in PA (1.52, CI [0.74, 2.41]), decrease in NA (-1.51, CI [-2.73, -0.47]), and increase in

LS (1.69, CI [0.98, 2.52]). Likewise, there was evidence of an indirect effect of Vipassana MM on increase in LS via increase in PM (1.14, CI [0.47, 2.02]).

There was evidence for serial indirect effects of Vipassana MM (X) on enhanced dimensions of SWB first via increase in mindfulness (ΔMF) and then increase in EI or increase in PM viz. X→ΔMF→ΔEI→ΔPA (0.53, CI [0.19, 1.01]), X→ΔMF→ΔEI→ΔNA (-0.52, CI [-1.15, -0.13]), X→ΔMF→Δ EI→ ΔLS(0.59, CI [0.24, 1.07]), X→ΔMF→ ΔPM→ΔLS (0.21, CI [0.03, 0.48]). There was no evidence of indirect effect of Vipassana MM (X) via increase in mindfulness on changes in PA or NA or LS (X→ΔMF→ΔY), as bootstrap CIs contained zero in all three cases.

Independent of the indirect effects, there was no evidence (direct effect) that Vipassana MM influenced change in PA (c' = 1.40, p = 0.10) or change in LS (c' = 0.64, p = 0.37), i.e. full mediation (refer Figures 3 and 5), however, there was evidence that Vipassana MM influenced decrease in NA (c' = -3.89, p < 0.001), i.e. partial mediation (refer Figure 4).

Table 5 Indirect effects of Vipassana MM on Affective Well-being

		Model 1: DY = DPA¶					Model 2: DY = DNA¶				
Model Pathway	Coeff.†	Effect‡	S.E.	LLCI	ULCI	P_M§	Effect	S.E.	LLCI	ULCI	P_M
1: X -> ΔMF -> ΔY	a_1b_1	0.08	0.24	-0.44	0.54		-0.64	0.39	-1.50	0.06	
2: X -> ΔEI -> ΔY	a_2b_2	1.52	0.43	0.74	2.41	0.43	-1.51	0.57	-2.73	-0.47	0.23
3: X -> ΔMF -> ÄEI -> ΔY	$a_1d_{21}b_2$	0.53	0.21	0.19	1.01	0.15	-0.52	0.27	-1.15	-0.13	0.08
Contrast (Ind 2 – Ind 3)	a_2b_2 - $a_1d_{21}b_2$	0.99	0.39	0.28	1.82		-0.99	0.46	-1.97	-0.19	
		Model 1: F (5, 174) = 10.11, p<0.001					Model 2: F (5, 174) = 17.38, p<0.001				
		R^2 = 0.23, MSE = 23.74					R^2 = 0.33, MSE = 35.85.				

† Coeff.: Path coefficients as shown in Figure 1. ‡ Unstandardized coefficient. § P_M: Ratio of indirect effect to total effect ¶ Direct effects for Model 1 (ΔY = ΔPA) and Model 2 (ΔY = ΔNA) are displayed in Figure 3 and Figure 4 respectively

Discussion

This study provides novel evidence of the significant positive impact of Vipassana MM on subjective well-being via mindfulness, trait EI and presence of meaning in healthy professionals during the Covid-19 pandemic. The study allows the interpretation of the significant effect sizes (small to large, as reported in Table 4) in light of previous causal research with wide prediction intervals (PI). Case in

Table 6: Indirect effects of Vipassana MM on Cognitive Well-being

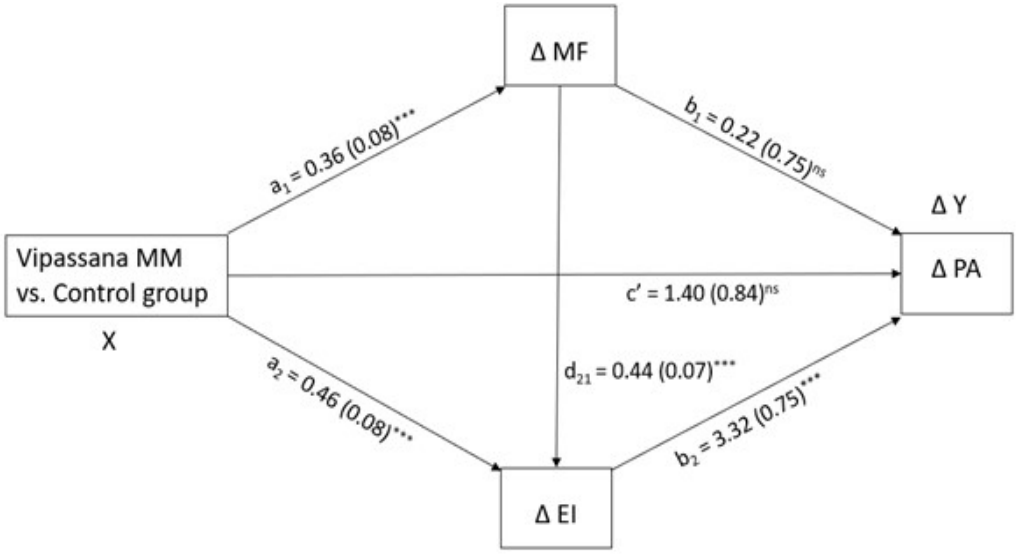
		Model 3: ΔY = ΔLS¶				
Model Pathway	**Coeff.†**	**Effect‡**	**S.E.**	**LLCI**	**ULCI**	**P_M§**
1: X -> ΔMF -> ΔY	a_1b_1	-0.40	0.28	-1.01	0.06	
2: X -> ΔEI -> ΔY	a_2b_2	1.69	0.40	0.98	2.52	0.44
3: X -> ΔPM -> ΔY	a_3b_3	1.14	0.40	0.47	2.02	0.30
4: X -> ΔMF -> ΔEI -> ΔY	$a_1d_{21}b_2$	0.59	0.21	0.24	1.07	0.15
5: X -> ΔMF -> ΔPM -> ΔY	$a_1d_{31}b_3$	0.21	0.11	0.03	0.48	0.05
Contrast (Ind 2 - Ind 3)	$a_2b_2 - a_3b_3$	0.54	0.61	-0.69	1.73	
Contrast (Ind 2 - Ind 4)	$a_2b_2 - a_1d_{21}b_2$	1.10	0.40	0.33	1.91	
Contrast (Ind 2 - Ind 5)	$a_2b_2 - a_1d_{31}b_3$	1.48	0.43	0.69	2.35	
Contrast (Ind 3 - Ind 4)	$a_3b_3 - a_1d_{21}b_2$	0.56	0.49	-0.35	1.57	
Contrast (Ind 3 - Ind 5)	$a_3b_3 - a_1d_{31}b_3$	0.94	0.39	0.31	1.80	
Contrast (Ind 4 - Ind 5)	$a_1d_{21}b_2 - a_1d_{31}b_3$	0.38	0.19	0.07	0.82	

Full model: F(6, 173) = 21.67, p<0.001, R^2 = 0.43, MSE = 16.09

† Coeff.: Path coefficients as shown in Figure 2. § P_M: Ratio of indirect effect to total effect

‡ Unstandardized coefficient ¶ Direct effects for Model 3 (ÄY = ÄLS) are displayed in Figure 5

Fig. 3 Path Coefficients (unstandardized) of a Serial Multiple Mediator Model Predicting Increase in Positive Affect (ÄPA). S.E. Displayed in Parenthesis; ***p<0.001



point is the wide PI reported in the recent meta-analysis of RCTs on how mindfulness-based programs improved well-being (effect size = 0.33; CI [0.11 to 0.54]; PI [-0.29 to 0.94]) in nonclinical settings (Galante et al., 2021).

We argue that the interwoven web of 3Is – Intention propelled by the Intensity of the unique 10-days residential Vipassana MM course in the Impelling context (pandemic) may have contributed to comparatively substantial effect

Fig. 4 Path Coefficients (unstandardized) of a Serial Multiple Mediator Model Predicting Decrease in Negative Affect (ÄNA). S.E. Displayed in Parenthesis; ***p<0.001

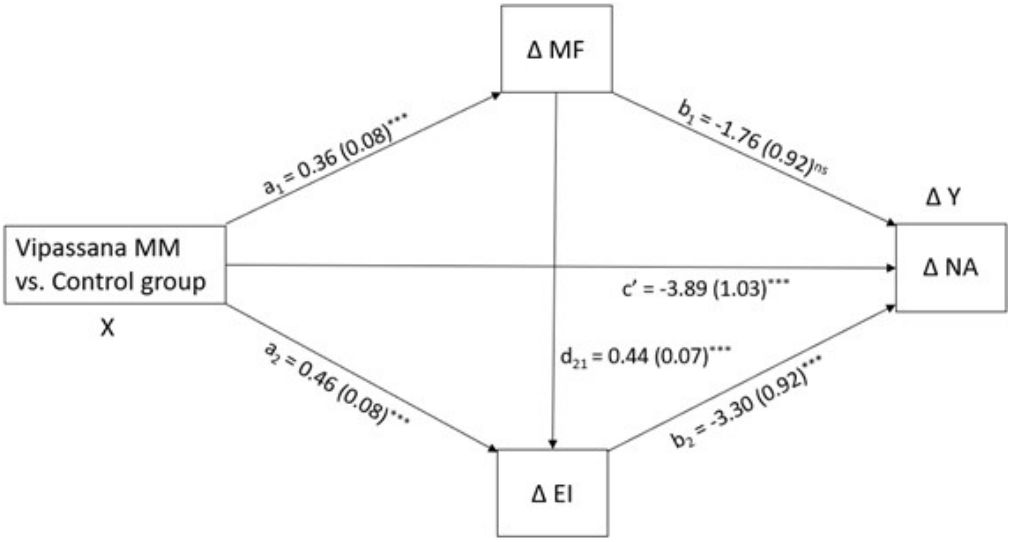
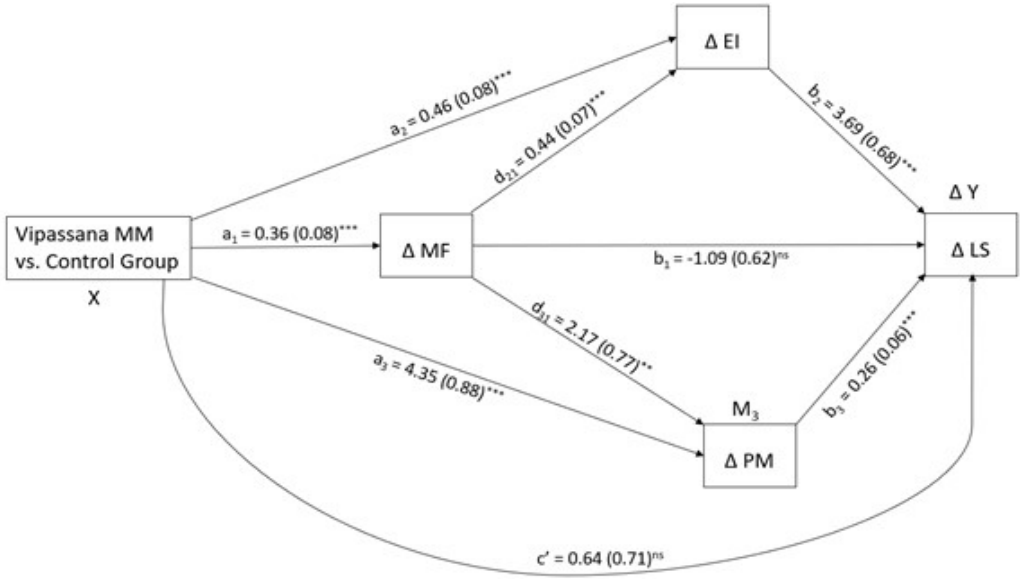


Fig. 5 Path Coefficients (unstandardized) of a Serial Multiple Mediator Model Predicting Increase in Life Satisfaction (ÄLS). S.E. Displayed in Parenthesis; **p<0.01; ***p<0.001



sizes in this study. This is in sync with the previous research by Kelly and colleagues (2017), who proclaimed that interventional complexity (i.e. intention and intensity of different mindfulness approaches) and contextual complexity (i.e. diverse target groups, settings and events like the pandemic) might modify the effects of a complex intervention; which in turn may lead to wide prediction intervals (PI).

Decoding Underlying Mechanisms

Serial mediation analysis revealed the underlying mechanisms through which Vipassana MM exerts its positive effect on various dimensions of subjective well-being (affective and cognitive).

Mindfulness as a Mediator: General findings afford evidence for mindfulness as a mediator across diverse sample characteristics and outcomes (Gu et al., 2015). In contrast, Keng and his colleagues (2012) found no evidence for mindfulness as a mediator of MBSR's effect in multiple mediation analysis. Interestingly, in this study, there was evidence of an indirect effect on conducting simple mediation analysis viz. increase in mindfulness mediated Vipassana's effect on increase in PA (0.60, CI [0.12, 1.18]) and decrease in NA (-1.16, CI [-2.23, -0.35]). However, as reported, the specific indirect effect via increase in mindfulness as a mediator ($X \rightarrow \Delta MF \rightarrow \Delta Y$) ceased to show up in multiple mediator models. Both these contrasting findings may be correct, as Hayes (2022: 197) asserted that "the indirect effect in a model with a single mediator confounds inûuence through that sole mediator and other mediators it may be correlated with but that are excluded from the model." This explanation, alongside a significant correlation between mindfulness and EI, found in this study and previous research (Baer et al., 2006; Brown et al., 2007), may reconcile the discrepancy.

Trait EI & PM as Mediators: There was evidence of a full mediation in the case of PA and LS, while there was a partial mediation in the case of NA; with a significant direct effect of Vipassana MM on decrease in NA. This finding underscores the need to leverage contrasting research paradigms to comprehensively understand the 'what' and 'how' of such an effect. S N Goenka clarifies that only '*bhâvanâ-mayâ paññâ*' - wisdom developed through direct personal experience, can totally purify one's mind (Hart, 2011). Thus, it is not about managing or transforming the negative affect, but becoming free of it by simply observing it non-judgmentally. "You become free from the anger if you learn to observe it objectively" (Goenka in Hart, 2011: 38). A recent study leveraging Interpretative Phenomenological Analysis revealed that meditators perceived Vipassana as a 'cleansing process' whereby maladaptive mental habits were reduced (Ekici et al., 2020). Thus, it is not about eliminating or moving from NA to PA, instead the practitioner's effort is to eradicate the unwholesome and awaken the wholesome (Bodhi, 2011). Such underlying processes, not captured by measures used in the serial mediation model, may have manifested in the form of a significant direct effect of Vipassana

MM on substantial attenuation in NA. As this field needs to move beyond logical positivism (Van Dam et al., 2017), such processes may be illuminated through mixed methods research in mindfulness that has been gaining prominence (Huynh et al., 2019).

Workplace Implications

With the blurring of personal and professional life during the COVID-19 pandemic, Toniolo-Barrios and Pitt (2021) elaborated on how mindfulness fosters self-regulation and the ability to unplug and detach from work, leading to enhanced well-being and productivity. Vipassana MM helps to cultivate the same by enhancing executive control through two facets - awareness and equanimity like the two wings of a bird (Hart, 2011; Teper et al., 2013); which in turn leads to decentering (psychological distancing from one's thoughts and emotions) and non-attachment (Ekici et al., 2020). The findings of this study become critical in light of the [a] recommendations by Holmes and colleagues (2020) to promote interventions that protect mental well-being and enhance resilience to counter the mounting risk of developing mental health disorders during the pandemic, [b] proclamation by the WHO (2019) that mental illness accounted for an economic impact of US$ 1 trillion per year in lost productivity; which is bound to deepen and [c] findings by McKinsey (2021) that 37% of the employees are likely to avoid any treatment because of the stigma attached to mental illness. Thus, Vipassana, a universal (non-sectarian) mindfulness meditation practice based on the teachings of the Buddha that is offered for free across the globe and targeted towards entire humankind, may play a crucial role at the level of individual, organization and society at large.

Limitations & Future Research

This study's limitations also afford exciting avenues for future research. The precision of effect estimates may be influenced by non-randomization (Higgins & Green, 2008). Consequently, despite the inclusion of several design features that aided causal inferences in this study, there may be scope for judiciously adding one or more features (if feasible) that may further dampen threats to internal validity and make the inferences richer. As recommended by Shadish and colleagues (2002), these features may comprise double pre-test and/ or multiple non-equivalent dependent variables and/ or combining switching replications with a non-equivalent control group design.

Second, trait EI was measured using the shorter version, i.e. TEIQue–SF, to reduce survey fatigue. Consequently, some factors like the self-control factor showed relatively lower internal consistency with a Cronbach's alpha of 0.702. The extended version of TEIQue may be administered if required to examine and contrast nuanced indirect effects of Vipassana MM on well-being via one or more factors of trait EI (e.g., decrease in NA via increase in self-control factor).

Third, an additional active control group or active alternative treatment

(MBI) could aid in understanding and contrasting the underlying processes through which MMs and MBIs exert their beneficial effects, respectively. This is essential given the enormous differences between MMs and MBIs with respect to philosophy, technique, aims and outcomes (Chiesa & Malinowski, 2011). While this may demand significant (international) collaboration and a concerted effort, perhaps the research community owes it to humankind as the time is ripe to [a] empower individuals across the globe to choose their path, [b] shape policies and enhance workplace adoption and [c] meaningfully contribute to further sustainable development goal 3: 'Ensure healthy lives and promote well-being for all at all ages'.

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