

Peruvian Upper Primary School Children Who Learn. Transcendental Meditation: A Quasi-Experimental Study of Personal Wellbeing

Niños peruanos de primaria alta que aprenden meditación trascendental: Un estudio cuasiexperimental de bienestar personal

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Abstract

Personal wellbeing is considered a global measure of how satisfied an individual feels about their life, a measure which encompasses mental and physical health as well as interfacing with resilience and quality-of-life. As part of a pre-, peri-, and post-pandemic research program in Perú, prior controlled evidence by these authors suggested the practice of Transcendental Meditation by 49 orphan girls increased wellbeing by 33%, a statistically significant change. We now to turn our attention to

Keywords:

personal wellbeing, Perú,
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upper primary-age school children. Using a quasi-experimental pretest-posttest design with 402 5th- and 6th-grade indigenous children at three schools, we found personal wellbeing increased after practicing Transcendental Meditation from 62.6/90 (69.5%) to 68.4/90 (76.0%), a significant difference ($p < 0.001$), with school, gender and age unrelated to this improvement. As personal wellbeing is a reliable predictor of both health and longevity in adulthood, these results suggest a more promising future for children in Perú.

Resumen

El bienestar personal es una medida global de satisfacción vital que abarca salud mental y física, resiliencia y calidad de vida. Como parte de un programa de investigación pre-, peri- y post-pandémico en Perú, evidencia controlada previa demostró que la Meditación Trascendental incrementó el bienestar en 49 niñas huérfanas en un 33%. Este estudio examina niños de primaria alta usando un diseño cuasi-experimental de pretest-posttest con 402 niños indígenas de 5° y 6° grado en tres escuelas. Los resultados mostraron que el bienestar personal se incrementó significativamente después de practicar Meditación Trascendental de 62.6/90 (69.5%) a 68.4/90 (76.0%), ($p < 0.001$). La escuela, género y edad no influyeron en esta mejora. Dado que el bienestar personal predice salud y longevidad en la adultez, estos resultados sugieren un futuro más prometedor para los niños en Perú.

Palabras clave:

bienestar personal,
Perú, niños de escuela
primaria, meditación
trascendental

Introduction

Conceptually, personal wellbeing is understood to encompass a person's holistic sense of self and welfare and is thus often considered to be a phenomenon beyond physical, mental and social health. This is certainly the view of many industry stakeholders, for example in the United Kingdom (Dooris, Farrier, & Froggett, 2018), in so-called Body-Mind-Spirit models (Li, Hu, & Chi, 2022), and in those investigating older adults (Hung *et al.*, 2023). And while the wellbeing construct has been contested, personal wellbeing is the subject of a significant amount of recent literature on the human condition (*e. g.*, Cotter & Andrew, 2024; Nesari, 2023; Norozi, 2023).

The case for personal wellbeing as a holistic construct of individual human life, what is sometimes called 'subjective' wellbeing, has been argued previously by Tomin and Cummins (2011). In short,



while personal wellbeing is frequently associated with health and happiness, it is most often described to mean a person's self-appraisal of "their overall life satisfaction... [that is, a satisfaction comprised of both] affective and cognitive evaluations" (Weinberg, Seton, & Cameron, 2018, p. 316); it is apparently "what makes a life go well for an individual" (Norozzi, 2023, p. 2). This is how we apply the term in the present study. In particular, we are interested in exploring the engagement with Transcendental Meditation by primary school children and their self-appraisal of wellbeing before and after practicing it. We have found evidence that Transcendental Meditation positively affected the health of students in Perú during the Covid-19 pandemic (Fergusson, Ortiz, & Bonshek, 2022) and the personal wellbeing of Peruvians secondary school orphan girls ($M = 14.4$ years, $SD = 1.0$, $F = 11.08$, $p = 0.03$) in whom an increase of 33% from 48.0/90 to 63.8/90 after three months of practice was observed (Fergusson *et al.*, 2023), but we now ask whether it increases the personal wellbeing of Peruvian upper primary school children. Our objective therefore is to expand our understanding of personal wellbeing in Perú and its association with Transcendental Meditation when practiced by upper primary school students.

The multidimensionality of Transcendental Meditation

If personal wellbeing is a holistic measure of life satisfaction, Transcendental Meditation can be described as a multidimensional and holistic procedure for developing it. Indeed, the theoretical and empirical literature published since 1970 on the practice, and the documented outcomes from it, is exhaustive.

Transcendental Meditation is described as a natural and effortless mental technique which allows the conscious thinking mind to experience a state of deep inner silence or pure consciousness, along with a corresponding level of deep physiological relaxation, an experience of rest which reduces built-up stress. This state of inner psychophysiological peacefulness is said to serve as a sound and reliable preparation for more successful action after the meditation period (Schneider *et al.*, 2024). In short, the technique results in "development of consciousness" (Nader, 2020, xvi) and the expansion of a good life. Transcendental Meditation, its founder Maharishi (2020,

p. i) said, is “a method for establishing man’s mind, heart, and behaviour deep in the source of Nature’s impulses within himself”.

Research on Transcendental Meditation suggests a significant range of personal and social benefits, a diverse range of outcomes which can be described as multidimensional. For example, the practice has been found to salutarily improve physical health, as indicated by changes to electrophysiological behaviour and the electroencephalographic signature of the brain (Hebert *et al.*, 2005) as well as the biochemical functioning of the body, indicative of less stress, increased brainwave coherence, decreased cardiovascular risk factors, and improved functional heart capacity (Jayadevappa *et al.*, 2007), leading to reduced health problems, such as hypertension and heart disease (Paul-Labrador *et al.*, 2006).

Examples from psychology and mental health are equally important. In fact, it has been established the practice is associated with decreased depression and anxiety (Burns, Lee, & Brown, 2011), faster rates of acquisition and consolidation of conservation states in children (Alexander *et al.*, 2005), improved field independence (a cognitive style associated with many other mental health benefits), reduced symptoms of attention-deficit/hyperactivity disorder (Grosswald *et al.*, 2008) and post-traumatic stress disorder (Rosenthal *et al.*, 2011), improved metacognition and behavioural regulation, and decreased insomnia and emotional exhaustion (Nestor, Lawson, & Fischer, 2023).

Research on behavioural outcomes—including those related to productivity, personality, quality-of-life, substance abuse, and decision making—have also been documented. For instance, Haaga *et al.* (2011) identified reduced rates of alcohol consumption by university students, Chhatre *et al.* (2013) measured improved HIV-specific health-related quality-of-life and behaviours as a result of the practice, and Nidich *et al.* (2015) found reduced mood disturbance, anger and confusion.

At the level of social relations, multiple studies reinforce this set of holistic outcomes: Schmidt-Wilk (2000) documented improvements in managers and their management of teams; Carlisle (2005) measured increased self-esteem and interpersonal experiences in the Indian workforce; and McCollum (1999) observed improved leadership behaviours and an ability of business leaders to inspire and enable others as a result of practicing Transcendental Meditation. These multidimensional and multifactorial findings have been summarised by Dillbeck (2020), the accumulative outcome of which can be equated to increased personal wellbeing.



Transcendental Meditation and wellbeing

Three generalised outcomes of Transcendental Meditation, beyond improved health, have been identified in the literature –resilience, quality-of-life, and wellbeing– and all three have been associated with a reduction in stress and overall improvement in high-level psychophysiological health factors (*e. g.*, Nidich *et al.*, 2015).

Resilience, the ability of individuals to “bounce back from adversity which may floor others” (Mguni, Bacon, & Brown, 2012, p. 1), is said to be increasingly relevant in a dynamically changing, volatile and uncertain world. According to Mguni *et al.*, “over time the quality of anyone’s life will depend on a certain amount of mental toughness”. Quality-of-life, on the other hand, is often used interchangeably in the literature to mean (or at least be directly associated with) both resilience and wellbeing (Las-Hayas *et al.*, 2022), and resilience and wellbeing are sometimes spoken about as overlapping psychophysiological/psychosocial constructs (*e. g.*, Mguni *et al.*, 2012). According to Portillo, Arenillas and Miralles (2022, p. 699), quality-of-life is a

result of the complex interaction between objective and subjective factors; the former are shaped by the external conditions, i.e. the economic, socio-political, cultural, personal and environmental factors, that facilitate or hinder the full development of individuals and their personalities; meanwhile, the latter are determined by the subject’s assessment of his or her own life.


In this definition, subjective factors are the same as personal wellbeing, but both the objective and subjective factors identified by Portillo *et al.* (2022) are apparently, according to both theory and prior evidence, developed through Transcendental Meditation.

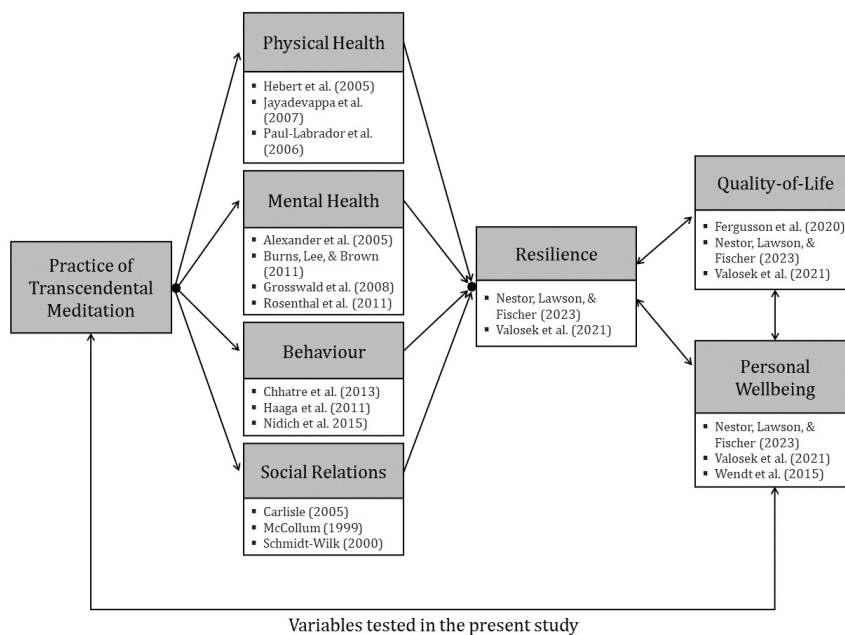
Quality-of-life is often associated only with physical and mental health and is commonly therefore referred to as health-related quality-of-life (HRQoL). Widespread, reliable research conducted in the last few years suggests Transcendental Meditation improves quality-of-life (for example, Fergusson *et al.*, 2020, found evidence of increased HRQoL at Cambodian universities in a controlled study when Transcendental Meditation was practiced by faculty members), reduces burnout, and increases both resilience and wellbeing in adults and students (*e. g.*,

Nestor *et al.*, 2023; Valosek *et al.*, 2021; Vela *et al.*, 2022). Importantly for this study, resilience and wellbeing increase with Transcendental Meditation practice and both are related to improved academic achievement in ninth-grade students (Wendt *et al.*, 2015).

Proto-theoretical model of conceptual elements

As a result of the above outcomes, Figure 1 presents a working theoretical model, with empirical citations to support its assumptions. This model is a higher-level, more detailed version of an earlier model which explained the role of Transcendental Meditation in changing the stress response of students to external stressors (*i.e.*, home isolation) during the Covid-19 pandemic (Fergusson *et al.*, 2025).

 **Figure 1.** Proto-theoretical model of Transcendental Meditation and personal wellbeing



The purpose of the present model is twofold: 1) to explain the key conceptual elements and their relationships as applied in this study; and 2) to provide a foundational view of the mechanisms associated with Transcendental Meditation and the development of per-

sonal wellbeing in school children. The model, based on the above evidence, shows that Transcendental Meditation is intended to improve physical, mental and behavioural health and social relations, leading to increased resilience, which in turn reciprocally improves one's quality-of-life and personal wellbeing. The question motivating this study therefore asks: Does the practice of Transcendental Meditation by Peruvian upper primary school children increase personal wellbeing?

Method

Participating Schools and Students

Four hundred and two purposively sampled school children ($M_{\text{age}} = 11.0$ years; $SD_{\text{age}} = 0.65$) from three Peruvian schools –Colegio Nacional de San Carlos, Institución Educativa Sol Radiante, and Gotitas de Rocío– participated in this study. Unique features of these participating schools and students include: 1) schools are located at what can be called 'extreme altitudes' on the Altiplano (average elevation 3,500m) where annual temperatures are routinely no more than 5–10°C; 2) students are mostly from Aymara and Quechua indigenous families, and many speak one of these languages at home rather than Spanish; and 3) schools are located in or near large regional cities. Table 1 provides descriptive data of the schools by gender and grade levels.

Group 1: Colegio Nacional de San Carlos

Two hundred and seventy-three 5th- and 6th-grade primary school students participated in this study ($M_{\text{age}} = 11.0$ years; $SD_{\text{age}} = 0.71$). Colegio Nacional de San Carlos, with approximately 1500 students across all co-educational primary and secondary grade levels, is a government-run school located in Puno (population 128 000) in the country's southeast, high on the Altiplano at elevation 3 800m. Since 1997, about 5 500 students have been instructed in Transcendental Meditation, including 500 in June 2023.

Group 2: Institución Educativa Sol Radiante

Eighty-eight 5th- and 6th-grade primary school students participated in this study ($M_{\text{age}} = 11.0$ years; $SD_{\text{age}} = 0.72$). Located near Cusco (popula-

tion 428 000), Institución Educativa Sol Radiante is a government-run, co-educational primary school at elevation 3 400m. In a total student population of approximately 300 students, 200 students were taught Transcendental Meditation in June 2023.

Group 3: Gotitas de Rocío

Forty-one 5th- and 6th-grade primary school students participated in this study ($M_{age} = 11.2$ years; $SD_{age} = 0.54$). Gotitas de Rocío is a private co-educational primary (grades 1–6) and secondary school (grades 1–3) located in San Carlos, Huancayo (population 456 000), the capital city of the Junín region in central Perú at elevation 3 300m. In a total student population of approximately 350 students, 150 students were taught Transcendental Meditation in June 2023.

 **Table 1.** Descriptive statistics by school, gender, age and grade level

School	Total	Gender		Primary School Grade Level	
		Girls	Boys	5th Grade	6th Grade
Group 1: Colegio Nacional de San Carlos	n = 273 68% M = 11.0 SD = 0.71	n = 81 30% M = 11.0 SD = 0.70	n = 192 70% M = 11.0 SD = 0.73	n = 160 59% M = 10.5 SD = 0.51	n = 113 41% M = 11.4 SD = 0.52
Group 2: I.E. Sol Radiante	n = 88 22% M = 11.0 SD = 0.72	n = 47 53% M = 10.7 SD = 0.64	n = 41 47% M = 11.0 SD = 0.77	n = 40 45% M = 10.6 SD = 0.47	n = 48 55% M = 11.6 SD = 0.55
Group 3: Gotitis de Rocío	n = 41 10% M = 11.2 SD = 0.54	n = 17 44% M = 11.1 SD = 0.52	n = 24 56% M = 11.2 SD = 0.56	n = 27 65% M = 10.9 SD = 0.32	n = 14 35% M = 11.7 SD = 0.47
Total and Average	N = 402 100% M = 11.0 SD = 0.65	n = 145 36% M = 10.9 SD = 0.62	n = 257 64% M = 11.0 SD = 0.68	n = 227 56% M = 10.6 SD = 0.43	n = 175 44% M = 11.6 SD = 0.51

Research Design

This study used a quasi-experimental, pretest–posttest design to measure personal wellbeing at the three schools: two pretest–posttest cohorts, Group 1: Colegio Nacional de San Carlos and Group 2: Institución Educativa Sol Radiante; and a posttest only comparison cohort, Group 3: Gotitas de Rocío. Students at Colegio Nacional de San Carlos and Institución Educativa Sol Radiante learned Transcendental Meditation in June 2023 at which time they were pretested using the following test instrument. These students then practiced Transcendental Meditation in their classrooms together at the beginning of the school day until November 2023 at which time they were re-administered the test instrument. Students at Gotitas de Rocío also learned Transcendental Meditation in June 2023, but were not pretested in order to serve as a posttest only comparison group; these students were tested in November 2023. At each school, students practiced meditation for 10–15 minutes at the beginning of each school day together in their classrooms; sessions were uniformly managed by teachers and/or a representative of Instituto Maharishi de Ciencia y Tecnología del Perú. Data from all schools were analysed in May 2024. Given the sample sizes for each group, the research design could more precisely be called a quasi-experimental, pretest–posttest unequal n design.

Research Instrument

The *Personal Wellbeing Index* (PWI) was used to measure personal wellbeing in each group, following guidelines outlined by the instrument's developer for administration to children (Cummins *et al.*, 2003; Cummins, 2005; Tomy & Cummins, 2011). Both children and adult versions of the PWI have been psychometrically validated (Tomy, Fuller Tyszkiewicz, & Cummins, 2013). Seven-item, eight-item, and nine-item versions of the PWI have been developed. A unique feature of the nine-item version is the later inclusion of Q9, which was endorsed by Wills (2009) as a result of application in Bogotá, Colombia. The PWI uses an 11-point Likert scale (0–10), with a score range of 0–90. The Spanish-language, PWI version used in this study contains the following items:

- Q1 – Thinking about your own life and personal circumstances, how satisfied are you with your life as a whole?
(Pensando en tu propia vida y circunstancias personales, ¿qué tan satisfecho estás con tu vida como entero?)
- Q2 –How satisfied are you with your standard of living?
(¿Cuán satisfecha/satisfecho estás con tu nivel de vida?)
- Q3 –How satisfied are you with your health?
(¿Cuán satisfecha/satisfecho estás con tu salud?)
- Q4 –How satisfied are you with what you have achieved in your life?
(¿Cuán satisfecha/satisfecho estás con lo que has conseguido en tu vida?)
- Q5 –How satisfied are you with your personal relationships?
(¿Cuán satisfecha/satisfecho estás con tu relaciones personales?)
- Q6 –How satisfied are you with how safe you feel?
(¿Cuán satisfecha/satisfecho estás con tu seguridad?)
- Q7 –How satisfied are you with feeling part of your community?
(¿Cuán satisfecha/satisfecho estás con tu sentimiento de formar parte de una comunidad?)
- Q8 –How satisfied are you with your future security?
(¿Cuán satisfecha/satisfecho estás con tu seguridad futura?)
- Q9 –How satisfied are you with your spirituality or religion?
(¿Cuán satisfecha/satisfecho estás con tu espiritualidad o religión?)

We used the nine-item version of the PWI rather than the seven-item version designed especially for young children (PWI-SC) because a) it has been applied successfully with children as young as 11 years in Perú (Bullock *et al.*, 2021) and b) because Tomyne *et al.* (2013) have identified the functional equivalence of the adult and children versions of the instrument. Alfaro *et al.* (2016) have provided reliability and validity data for the PWI.

Data Analysis

In addition to descriptive measures, including for normality and reliability, after testing for homogeneity of variance using Levine's test (Odoi, Twumasi-Ankrah, & Samita, 2024), weighted means analysis of variance (ANOVA) will be used to test any directional changes of personal wellbeing in Groups 1 and 2, and to make comparisons with Group 3. Practical significance of effect size between pretest and posttest personal wellbeing scores will be measured using Cohen's *d*. *Post-hoc* tests of Honestly Significant Difference or HSD (Tukey's

Q) will be performed to measure inter-group characteristics. Pearson product moment correlation coefficients (r) will be calculated to determine associations between PWI items. Scale maximisation (%SM) for total personal wellbeing scores will provide future researchers with the opportunity to compare results with the seven- and eight-item versions of the PWI.

All measures will be tested at the two-tailed, 99.9% confidence level. We use this increased confidence level because Benjamin *et al.* (2018) have advocated decreasing the typical confidence threshold of $p < 0.05$ to below $p < 0.005$ to avoid as many Type I errors as possible in socio-educational research. They argue two points in support of this reduction:

First, a two-sided P value of 0.005 corresponds to Bayes factors between approximately 14 and 26 in favour of H_1 . This range represents ‘substantial’ to ‘strong’ evidence according to conventional Bayes factor classifications. Second, in many fields the $P < 0.005$ standard would reduce the false positive rate to levels we judge to be reasonable.... For exploratory research with very low prior odds...even lower significance thresholds than 0.005 are needed (pp. 7–8).

Such an increase in the evidence threshold from $p < 0.05$, traditionally used to determine significance, to $p < 0.001$ had been earlier advocated by Johnson (2013) because it might counteract concerns related to lack of reproducibility and a decline in public confidence in the credibility of science.

Ethics

This research was approved in May 2023 by the Research Ethics Approval Committee of Maharishi Vedic Research Institute (MVRI) in Australia, in accordance with both MVRI’s Code of Research Practice and Procedure and the *Australian Code for the Responsible Conduct of Research* and was conducted under approval number MVRI-2023-32. The project was countenanced in advance by administrators of Colegio Nacional de San Carlos, Institución Educativa Sol Radiante, Gotitas de Rocío (who provided written guardianship informed consent on behalf of parents and students), and Instituto Maharishi de Ciencia y Tecnología del Perú.

RESULTS

Average skewness for total PWI across all schools was Skew [-0.86] and average kurtosis for total PWI across all schools was Kurt [1.11], both of which were more normal than data presented by Alfaro *et al.* (2016) and Tomyne *et al.* (2013). Cronbach's alpha coefficients indicate acceptable internal consistencies of $C\alpha = 0.82$ for Q1, $C\alpha = 0.78$ for Q2, $C\alpha = 0.79$ for Q3, $C\alpha = 0.81$ for Q4, $C\alpha = 0.78$ for Q5, $C\alpha = 0.80$ for Q6, $C\alpha = 0.78$ for Q7, $C\alpha = 0.78$ for Q8, and $C\alpha = 0.69$ for Q9, for an average internal reliability of $C\alpha = 0.78$, comparable to the internal reliability findings of Casas *et al.* (2012) (*i. e.*, $C\alpha = 0.78$ for Chilean and $C\alpha = 0.78$ for Brazilian children and adolescents). Levine's test performed on the pretest personal wellbeing scores of Groups 1 and 2 yielded $f = 0.0004$, $p = 0.98$, indicating the requirement for homogeneity of data was met. Table 2 presents the means and standard deviations for each of the nine-PWI items and total personal wellbeing scores by group and average.



Table 2. Pretest–posttest means (and standard deviations) by group for nine items and total of personal wellbeing

School		Group 1	Group 2	Group 3	Average
Q1 –Thinking about your own life and personal circumstances, how satisfied are you with your life as a whole?	Pretest	M = 6.49 (SD = 2.4)	M = 7.13 (SD = 2.7)	—	M = 6.81 (SD = 2.5)
	Posttest	M = 7.22 (SD = 2.2)	M = 7.50 (SD = 2.3)	M = 7.15 (SD = 2.2)	M = 7.29 (SD = 2.2)
Q2 –How satisfied are you with your standard of living?	Pretest	M = 7.31 (SD = 2.5)	M = 7.28 (SD = 2.7)	—	M = 7.29 (SD = 2.6)
	Posttest	M = 7.54 (SD = 2.0)	M = 7.73 (SD = 2.2)	M = 8.71 (SD = 1.6)	M = 7.99 (SD = 1.9)
Q3 –How satisfied are you with your health?	Pretest	M = 6.38 (SD = 2.4)	M = 7.31 (SD = 2.6)	—	M = 6.84 (SD = 2.5)
	Posttest	M = 7.09 (SD = 2.4)	M = 7.34 (SD = 2.1)	M = 7.61 (SD = 2.2)	M = 7.34 (SD = 2.2)
Q4 –How satisfied are you with what you have achieved in your life?	Pretest	M = 7.12 (SD = 2.4)	M = 7.06 (SD = 2.7)	—	M = 7.09 (SD = 2.5)
	Posttest	M = 7.79 (SD = 2.1)	M = 8.00 (SD = 2.3)	M = 7.51 (SD = 2.4)	M = 7.76 (SD = 2.2)
Q5 –How satisfied are you with your personal relationships?	Pretest	M = 5.98 (SD = 2.6)	M = 6.84 (SD = 2.7)	—	M = 6.41 (SD = 2.6)
	Posttest	M = 7.34 (SD = 2.2)	M = 7.83 (SD = 2.2)	M = 8.17 (SD = 2.2)	M = 7.78 (SD = 2.2)



School		Group 1	Group 2	Group 3	Average
Q6 –How satisfied are you with how safe you feel?	Pretest	M = 6.37 (SD = 2.7)	M = 6.98 (SD = 2.9)	—	M = 6.67 (SD = 2.8)
	Posttest	M = 7.43 (SD = 2.2)	M = 7.07 (SD = 2.4)	M = 6.75 (SD = 2.6)	M = 7.08 (SD = 2.4)
Q7 –How satisfied are you with feeling part of your community?	Pretest	M = 7.15 (SD = 2.4)	M = 7.59 (SD = 2.4)	—	M = 7.37 (SD = 2.4)
	Posttest	M = 7.32 (SD = 2.2)	M = 6.89 (SD = 2.4)	M = 7.71 (SD = 2.1)	M = 7.30 (SD = 2.2)
Q8 –How satisfied are you with your future security?	Pretest	M = 6.80 (SD = 2.4)	M = 7.90 (SD = 2.4)	—	M = 7.35 (SD = 2.4)
	Posttest	M = 7.70 (SD = 2.1)	M = 8.38 (SD = 2.0)	M = 8.00 (SD = 1.6)	M = 8.02 (SD = 1.9)
Q9 –How satisfied are you with your spirituality or religion?	Pretest	M = 7.15 (SD = 2.6)	M = 6.83 (SD = 3.3)	—	M = 6.99 (SD = 2.9)
	Posttest	M = 7.93 (SD = 2.2)	M = 7.33 (SD = 2.4)	M = 8.51 (SD = 2.1)	M = 7.92 (SD = 2.2)
Total Personal Wellbeing	Pretest	M = 60.6 (SD = 15.1)	M = 64.6 (SD = 16.7)	—	M = 62.6 (SD = 15.9)
	Posttest	M = 67.2 (SD = 13.5)	M = 67.9 (SD = 12.0)	M = 70.1 (SD = 12.0)	M = 68.4 (SD = 12.5)
	Pretest (%SM)	M = 67.3	M = 71.7	—	M = 69.5
	Posttest (%SM)	M = 74.6	M = 75.4	M = 79.9	M = 76.0

Alfaro *et al.* (2016) found Chilean girls ($M_{\text{age}} = 11.0$ years, $SD_{\text{age}} = 0.89$ years) had higher levels of personal wellbeing than boys. However, in our study no significant differences were observed for any wellbeing items between girls and boys. For example: to Q1— Thinking about your own life and personal circumstances, how satisfied are you with your life as a whole, girls scored $M = 6.72$ and boys scored $M = 7.08$ ($t = 1.86$, $p = 0.06$); to Q3—How satisfied are you with your health, girls scored $M = 6.79$ and boys scored $M = 6.96$ ($t = 0.85$, $p = 0.39$); and to Q7—How satisfied are you with feeling part of your community, girls scored $M = 7.30$ and boys scored $M = 7.24$ ($t = 0.30$, $p = 0.76$).

Correlations between Personal Wellbeing Index (PWI) items in this study were closely associated with results reported by Casas *et al.* (2012) for children in Chile and Brazil. For example, in our study Q1 was correlated to Q3 ($r = 0.40$, $p < 0.001$) and in Casas *et al.*'s study, Q1 was correlated to Q3 ($r = 0.35$, $p < 0.01$); in our study Q2 was correlated to Q7 ($r = 0.41$, $p < 0.001$) and in Casas *et al.*'s study, Q2 was correlated to Q7 ($r = 0.44$, $p < 0.01$); and in our study Q1 was correlated to total personal wellbeing ($r = 0.69$, $p < 0.001$) and in Casas *et al.*'s study, Q1 was correlated to total personal wellbeing ($r = 0.59$, $p < 0.01$).

As shown in Table 3, analyses of variance indicate the effect of practicing Transcendental Meditation was significant for personal wellbeing. *Post hoc* measures confirmed no differences in personal wellbeing were observed at pretest between Groups 1 and 2 ($Q = 1.47, p = 0.45$) or at posttest between Groups 1 and 2 ($Q = 2.12, p = 0.08, d = 0.19$), Groups 1 and 3 ($Q = 2.82, p = 0.01, d = 0.45$), or Groups 2 and 3 ($Q = 1.55, p = 0.27, d = 0.26$). The effect size between all pretest (average 62.6, $SD = 15.9, n = 361$) and posttest (average 68.4, $SD = 12.5, n = 402$) personal wellbeing scores was a moderate $d = 0.41$.



Table 3. Pretest–posttest analysis of variance data by group for personal wellbeing

	SS	df	MS	F	P
Meditation effect (all Groups)	6480	1	6480	31.4	< 0.001
Residual	141294	684	207	—	—
Meditation effect (Groups 1 and 2 Only)	5371	1	5371	25.5	< 0.001
Residual	135290	643	210	—	—

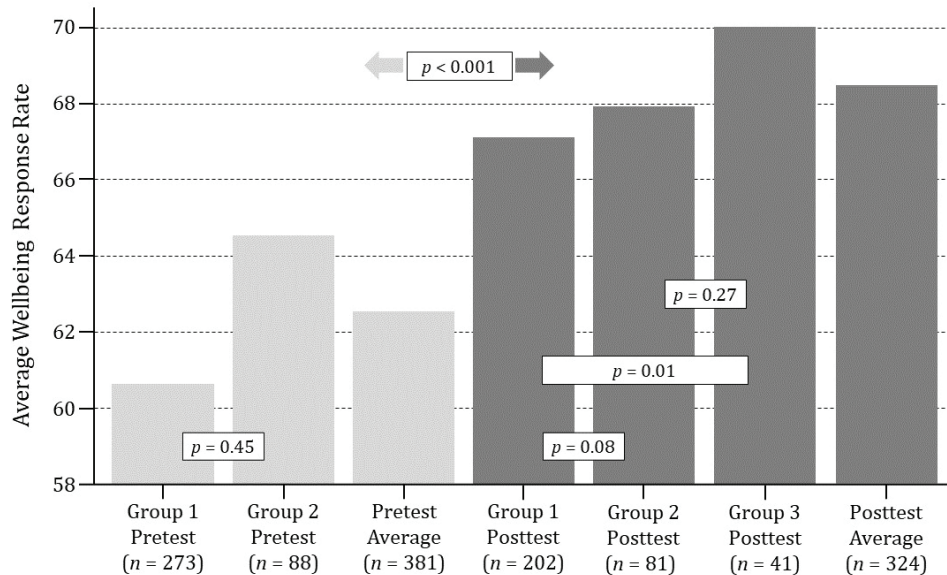
Analyses of covariance (ANCOVA) indicate school ($F = 4.71, p = 0.03$) and gender ($F = 0.99, p = 0.31$) effects did not influence these results. Age was a marginally significant covariate ($F = 9.45, p = 0.002$) but the effect of age was only about one third as strong as the meditation effect on personal wellbeing. Moreover, the age effect was due to only one cohort: the pretest 6th-grade students wellbeing scores at Colegio Nacional de San Carlos, the second largest single subgroup ($M = 54.6, SD = 15.9$), were significantly lower than the pretest 6th-grade scores of students at Institución Educativa Sol Radiante ($M = 64.0, SD = 19.5, F = 4.90, p < 0.001$), otherwise no differences were observed in pretest age-related data.

Figure 2 graphically illustrates these average raw score response rates for personal wellbeing by group and probability of difference.





Figure 2. PWI means and standard deviations by group and inter- and between-group probabilities



Discussion and Conclusion

The literature is unequivocally clear that rising and elevated levels of personal wellbeing are advantageous. Associations have been found, for example, between wellbeing and better social relations, work performance, and creativity, and it is apparently a predictor of later-life good health and longevity (Diener, Oishi, & Tay, 2018, p. 225). In other words: “It appears that people who are high [in personal wellbeing] tend to experience better health and live longer on average”. And while hesitation around the implications of not enough (and indeed too much) personal wellbeing can be found, the most persuasive arguments relate to its overall benefit: wellbeing, it is generally held, relates to a ‘good life’ (e. g., Willroth *et al.*, 2024).

For this reason, the observed changes in personal wellbeing for young children in Perú, while moderate, are noteworthy. Moreover, the present quasi-experimental results reinforce to some degree the similar changes we observed in earlier research with orphan girls (Fergusson *et al.*, 2023), with maturation appearing unlikely to ac-

count for the observed change due to the relatively short period of time between pretest and posttest data collection points.

However, limitations with this study can be identified. The mismatched sample sizes are an issue but any likely confounding effect on the main effect caused by this mismatch has been statistically controlled by weighting the means. Further, having no pretest comparison group at Gotitas de Rocío limits the inferences we can draw from any possible affirmative change in Group 3. But while a pretest comparison group would have strengthened the study's design, its absence does not entirely frustrate the validity of this two-group intervention and posttest-only comparison design. The absence of both random selection and assignment does however limit our ability to generalise these findings to a wider Peruvian student population and we therefore make no attempt to do so. Future research will need to address these and any other methodological weaknesses in order to remove them from discussion.

Whether the predicted association that apparently exists between personal wellbeing on the one hand and health and longevity on the other truly applies to 11-year-old Peruvian students remains a topic for further long-term research. But the fact practice of Transcendental Meditation by upper primary school students in Perú does appear to increase personal wellbeing over a relatively short period of time, albeit to a modest degree but enough to answer the research question affirmatively, is an encouraging finding and one which warrants further experimental research.

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