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Mindfulness, teacher mental health, and well-being in early education: a correlational study

Carolina Corthorn^{1*}, Víctor Pedrero², Natalia Torres¹, Katuska Reynaldos-Grandón² and Paola Paredes³

Abstract

This study analyzed the relationship between mindfulness and variables considered relevant for teacher–student interactions: teacher burnout, general stress, anxiety, depression, and quality of life. We hypothesized that mindfulness would relate negatively with mental health variables and positively with quality of life. We also explored which specific aspects of mindfulness would predict burnout, depression, anxiety, stress, and quality of life. Given the results of regression analyses, mediation models were performed to explore the mechanisms through which different facets of mindfulness affect quality of life. As predicted, the correlation analysis showed that mindfulness and its dimensions were positively associated with the quality of life of the teachers and burnout dimension of personal fulfillment and negatively associated with anxiety, depression, and stress (considering FFMQ total score and most of its dimensions). Consistently, regression analysis showed that the overall level of mindfulness, after controlling for the grade level at which the teacher works, showed significant associations with the level of personal fulfillment, depression, anxiety, stress, and quality of life. The results of the mediation analyses showed that the ability not to judge ourselves was associated with fewer symptoms of depression and stress and, through these pathways, positively affected quality of life. On the other hand, the ability not to react favored quality of life by reducing anxiety and stress. Finally, acting with awareness was the only facet of mindfulness that favored quality of life, affecting one of the dimensions of burnout.

Keywords Mindfulness, Well-being, Mental health, Quality of life, Preschool teachers

The measurement of quality in early childhood education considers factors related to structure and process. Structure-related factors refer to minimum conditions such as supplies, infrastructure, and the adult/child ratio. Process-related factors refer to teacher-child interactions where learning takes place and for which teachers' sensi-

tivity and socioemotional skills are essential [1–5]. Teachers who are aware of and receptive to children's signals regarding both their emotional and cognitive needs can provide better quality interactions favoring the development of the children under their care. One factor that can significantly affect process-related factors is the teacher's mental health and well-being. Evidence shows that teaching is a highly stressful occupation [5–14]. This risk factor is even more concerning considering the actual post-pandemic scenario. As a general context, COVID-19 has generated a mental health crisis internationally, with an increase in both acute and chronic stress levels. It is estimated that the increase in anxiety and depression disorders was more than 25% during the first year of the pandemic [15]. Regarding the context where this research

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was conducted, during pandemic and post-pandemic period 25% of Chileans presented symptoms of anxiety [16] and 67% of work-related illnesses identified during 2022 were mental health diagnoses [17]. Also, pandemic and post pandemic context has had an impact in teacher's labor conditions. During the pandemic 63% of Chilean teachers considered their workload increased and 85% reported feeling "stressed or very stressed" [18]. 49% of teachers in Chile perceive that class climate became worse in 2022, compared to 2021. They report an average of 9 extra nonpaid worked hours per week [19]. Literature is clear regarding the relation among excessive workload and teacher's well-being and mental health [20, 21]. In Chile, this aspect might be of particular concern since it appears to be affecting teacher retention in the school system. It has been found that 20,2% of new teachers desert their job in their 5th year of work [22]. Studies project an important deficit of teachers in Chilean schools by the year 2030 [23].

Work stress not only affects the physical and mental health of the teacher, but symptoms of burnout, such as irritability, discouragement and hyperreactivity to stress, represent serious interference in the teacher-student relationship and therefore affect the effectiveness of the teaching-learning process [24]. An unmotivated and irritated teacher who is working with great emotional distance, trying to mitigate the negative effects she perceives her work is having on her emotional well-being, can generate a very negative impact on interactions in the classroom [25]. Therefore, the relevance of promoting teachers' mental health and well-being is warranted. Schonert-Reichl [5] proposes that this should be included as part of teacher preparation and professional development, which should not only include contents about children's social and emotional learning and development, but also give teachers tools and strategies to develop their own socio-emotional well-being. Teacher's mental health should be considered a priority not only because of its impact in children, but also since this is a fundamental human right as defined by the World Health Organization (WHO) [26]. Therefore, we must seek to ensure healthy work environments for teachers, which includes taking into account not only teachers' socio-emotional personal development but also generating adequate work conditions and an educational structure that value the work of teachers.

WHO [26] defines mental health as an aspect that is an integral part of our health and general well-being. It points out that by having mental health, people have a better ability to relate, function, face difficulties and thrive. In turn, it maintains that mental health exists on a continuum, with experiences ranging from an optimal state of well-being to debilitating states of great suffering and emotional pain. Likewise, WHO states that health is

not defined merely by the absence of disease, but rather proposes a holistic promotion approach towards health and its care. In this context, it raises the concept of quality of life and emphasizes the importance of measuring and evaluating it to have a proactive and preventive perspective. It defines quality of life as the perception that an individual has about his position in life in the context of his culture and value system in which he lives and how this relates to his goals, expectations, standards and concerns [27].

Mindfulness, defined as an awareness that arises through "paying attention in a particular way, on purpose, in the present moment, non-judgmentally" [28] has been widely used as an evidence-based practice for approaching the improvement of mental health and well-being. Empirical studies show that the benefits of mindfulness are abundant, including reducing stress, increasing positive emotions, and improving quality of life. Meta-analytical studies report significant results in reducing depression and anxiety, with effect sizes ranging from medium to large [29–36]. At the interpersonal level, improvements are observed in the quality of interpersonal relationships and intimacy [37, 38], identification and communication of emotions, anger management, and empathy [39]. Finally, at the cerebral level, effects of mindfulness-based interventions have been found in areas of the brain associated with the experience of positive emotions [40] and with empathy and theory of mind [41]. Structural brain changes have been found in areas associated with learning and memory processes, emotional regulation, self-referential processing, and perspective taking after participating in a mindfulness-based intervention (MBSR) [42]. In terms of neuroendocrine responses, Brown, Weinstein, and Creswell [43] found that individuals who had higher levels of mindfulness also had lower levels of cortisol and perceived stress.

Considering the abundant evidence regarding the effects of mindfulness on stress reduction, well-being, emotional regulation, health, and prosocial dispositions [29–33] there has been an increased interest in developing adaptations of mindfulness programs for the school context. For example, helping teachers cultivate mental habits would help them be better prepared for job-related demands and stressors. It has been proposed that training teachers in mindfulness would help to strengthen their resilience and prevent burnout [44–46]. Additionally, they can transmit this tool to their students either by modeling attitudes and behaviors that embody mindfulness and/or through direct instruction of mindfulness practices directed to the children. Evidence shows that mindfulness helps to promote the development of children's executive functions and the self-regulation of emotions and impulses [44]. The ability to regulate attention and emotions provides a basis for school readiness, as it

enhances dispositions that are conducive to learning and that promote positive interpersonal relationships [47]. Longitudinal studies show that self-regulation in childhood is a key predictor of health, financial stability, and educational achievement in adulthood [48]. Therefore, implementing mindfulness in educational contexts would be positive for both children and teachers, together with the educational community.

Most studies regarding mindfulness in education assess the results of mindfulness-based interventions directed either to teachers or students and find significant effects on several measures. For instance, a meta-analysis that reviewed 24 studies evaluating mindfulness in the school context found effect sizes (Hedge's g) of 0.80 for cognitive performance (mainly tests of attention and concentration), 0.39 for stress reduction, and 0.36 for measures of resilience [49]. A systematic review of 16 studies of mindfulness interventions for in-service teachers found positive effects (Cohen's d) on teacher wellbeing, including reduction of perceived stress and burnout (size effect from 0.24 to 0.90), physiological symptoms of stress (cortisol levels, $d=0.70$), depression (effect size from 0.61 to -1.06), anxiety (effect size from 0.71 to 0.89) and overall psychological distress (effect size from 0.53 to 1.74). Additionally, they found positive effects on classroom organization ($d=0.28$), teacher's sense of efficacy (d from 0.52 to 0.66) and use of positive affect words in the classroom ($d=0.57$). [50] In a more recent systematic review, Hidajat et al. [51] evaluated the efficacy of mindfulness-based interventions for teachers' stress and burnout outcomes. They found that 77%, 20 out of 26 studies, reported a significant reduction in stress and 89%, 16 out of 18 studies, a significant reduction in burnout.

At the preschool level, studies have also found significant effects of mindfulness-based interventions on measures of executive functions [52–54], self-regulation [54–56], prosocial behavior [44, 57–59], resilience [59] and hyperactivity [44, 58, 60]. Jackman et al. [61] also reported an increase in body and emotional awareness, self-calming skills, and empathy. Some studies also report evidence regarding reduced perceived stress in early childhood teachers as an effect of mindfulness-based interventions [62–64].

Studies at the preschool level have also shown that children from disadvantaged sectors benefit more from mindfulness interventions in social-emotional and behavioral areas. These findings could be especially beneficial in countries with higher social inequality, such as Chile. In this sense, Poehlmann-Tynan et al. [55] show that a mindfulness intervention significantly increased attentional focus and self-regulation among young children from economically disadvantaged families. Another study regarding mindfulness and executive functions points out that children from lower socioeconomic

backgrounds show lower levels of executive functions and higher levels of stress and stress hormones. Since stress interferes with the use and development of those skills, mindfulness intervention could be significantly beneficial for them [53].

These kinds of studies provide substantial evidence regarding the effects of mindfulness-based programs in the educational setting. Nevertheless, interventions are usually complex and include several factors intrinsic to their characteristics, making it difficult to be certain about what specific aspects generated the results. Was it mindfulness per se? Was it being listened to in the context of a group practice? Was it sharing experiences with others? Was it having a supportive and attentive instructor? Considering the complexity of intervention scenarios, it is also interesting to approach the study of mindfulness in education by analyzing the relation among mindfulness as a "trait" and variables related to teachers' mental health and well-being, which, as previously mentioned, is a fundamental variable for assuring good teacher-student interactions and is therefore essential for the quality of the learning process. Identifying relevant aspects associated with being more mindful provides further evidence regarding the importance of mindfulness, regardless of meditation practice. Studies focused on general population samples have found that people who are naturally more mindful report feeling less stressed, anxious, or depressed and happier, inspired, grateful, self-compassionate, and satisfied with life [37, 65–69]. People with a higher level of mindfulness have also been found to have greater awareness of their emotional states, greater understanding and acceptance of them, and better emotional self-regulation [31, 67, 70]. Regarding teachers, there are also some studies that assess the relation among mindfulness and other variables without intervention. For instance, Becker, Gallagher and Whitaker [71] analyzed the relation between the dispositional mindfulness of early childhood educators and the quality of teacher-child interactions, finding a positive relation among them. In another study, Anama-Green [72] analyzed the relationship among the self-reported levels of burnout and secondary traumatic stress of teachers and their reported levels of interpersonal and intrapersonal mindfulness. Those who reported high intrapersonal mindfulness scores were up to 11 times more likely to report "low" burnout than those who reported low intrapersonal mindfulness scores. Studies that measure mindfulness as a "trait" can be a very valuable source of scientific data, but it is important to keep in mind that mindfulness is a skill that can be developed through practice, as mentioned in previous paragraphs.

The purpose of the present study was to analyze the relationship between mindfulness and variables considered relevant for teacher-student interactions: teacher

burnout, general stress, anxiety, depression, and quality of life. We hypothesized that mindfulness would relate negatively with mental health-related variables – teacher burnout, stress, anxiety, and depression – and positively with quality of life as perceived by the teachers in self-report questionnaires. We also explored which aspects of mindfulness would predict lower levels of burnout, depression, anxiety, and stress. Finally, we also explored which aspects of mindfulness are specifically related to quality of life.

Materials and methods

Participants

The participants of this study were 42 preschool teachers and teacher assistants who work at public schools and preschool centers administered by a local municipality in the city of Santiago, Chile (Municipalidad de La Reina). The average age of the teachers ($n=27$) and teacher assistants ($n=15$) was 40 years old ($SD=14$); most of them were women ($n=41$), married (38.1%), worked in the school context for an average of 14 years (45.2%), and had an average of 26 children in their classes ($SD=8$) (See Table 1 for detailed sample description).

Procedure

The participants were invited to the study during an online meeting where the study was fully explained, together with the main principles of mindfulness and its benefits, and they were also informed that their participation would be voluntary and confidential. First, we contacted by mail the director of the board of education of La Reina, Chile, who facilitated the meeting in which the early childhood teachers and the school principals learned about the proposal. The letter of consent and

the questionnaires were sent to the participants by email using a Google Form. To ensure the return of both forms, participants received a weekly reminder by mail; earlier letters were generic, and later letters were addressed to specific individuals.

Measures

Sociodemographic questionnaire

The participants completed a questionnaire regarding contact and sociodemographic information, including the following aspects: date of birth, gender, marital status, occupation, type of contract, number of years working as a preschool teacher or assistant, type of center they worked in (school v/s preschool center), number of hours worked daily, number of children in their classrooms, and level they taught.

Five-facet mindfulness questionnaire

The FFMQ is a 39-item measure that assesses five mindfulness domains [65]. Scores range from 1 = *Never or rarely true* to 5 = *Very often or always true*, where higher scores reflect more mindfulness in five aspects. Subscale observing ($\alpha=0.78$) measures the tendency to notice or attend to internal and external experiences, such as emotions, cognitions, sights, and smells. Describing ($\alpha=0.90$) measures the tendency to verbally describe and label these experiences. Acting with awareness ($\alpha=0.87$) refers to bringing full awareness to current activity or experiences. Nonjudging ($\alpha=0.82$) refers to a nonevaluative stance toward inner experiences. Nonreactivity ($\alpha=0.79$) measures the tendency to allow thoughts and feelings to come and go without getting carried away by them. The construct validity of the FFMQ has been extensively assessed in meditating and nonmeditating samples [65, 70]. In Chile, good reliability has also been found; $\alpha=0.91$ for the general scale, and scores range from 0.75 to 0.88 in Cronbach's alpha for the five subscales [73].

DASS-21

The Depression Anxiety Stress Scales 21 (DASS-21) is a short form of Lovibond and Lovibond's [74] 42-item self-report measure of depression, anxiety, and stress (DASS). The DASS consists of three 14-item self-report scales. A 4-point severity scale measures the extent to which each state has been experienced over the past week. The DASS-21 consists of three 7-item self-report scales taken from the full version of the DASS. The *depression* scale ($\alpha=0.86$) assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. The *anxiety* scale ($\alpha=0.8$) assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The *stress* scale ($\alpha=0.82$) is sensitive to levels of chronic, non-specific arousal. It assesses difficulty relaxing, nervous

Table 1 Sample description

		N	%
Gender	Female	41	97,6
	Male	1	2,4
Profession	Preschool Teacher	27	64,3
	Teacher Assistant	15	35,7
Marital Status	Married	16	38,1
	Living together	5	11,9
	Divorced	2	4,8
Educational Center	School	19	45,2
	Childcare center	20	47,6
		22	52,4
Classroom age group	0–2	3	7,1
	2–4	19	45,2
	4–5 (Prekindergarden)	10	23,8
	5–6 (Kindergarden)	10	23,8
Age (M, SD)		40	14
Years of working experience (M, SD)		14	10
Number of children in classroom (M, SD)		26	8

arousal, and being easily upset/agitated, irritable/overreactive, and impatient. Scores can be grouped into ranges according to severity: *normal*, *mild*, *moderate*, *severe*, and *extremely severe*. These labels are used to characterize the full range of scores in the population. For example, “mild” means that the person is above the population mean but still well below the typical severity of people seeking help (it does not mean a mild level of a “disorder”). The DASS-21 was translated and adapted in Chile, and psychometric studies support its use in the Chilean population [75, 76].

Quality of life questionnaire (WHOQOL-BREF)

This is a questionnaire developed by the World Health Organization that provides a self-reported profile of quality of life. It was designed to be used in both the general and clinical populations. There are two versions, the WHOQOL-100 and the WHOQOL-BREF, both with validation studies in Spanish. The version used in this study is the brief version, that is, the WHOQOL-BREF ($\alpha=0.88$), which provides a quick way to score the profiles it explores, and consists of a self-administered questionnaire of 26 questions, with 5 response alternatives in Likert scale (1 to 5) and generates a profile of 4 dimensions that are scored independently, namely, physical health, psychological health, social relationships and environment, as well as a global score on perception of quality of life and general health. The higher the score is, the better the quality-of-life profile of the person evaluated is.

Maslach burnout inventory-educators survey (MBI-ES)

The Maslach Burnout Inventory (MBI) developed by Maslach and Jackson [77] is validated by extensive research that has been conducted in the more than 35 years since its initial publication. The MBI-ES is a 22-item self-report version of the original MBI for use with educators, including teachers, administrators, other staff members, and volunteers working in any educational setting. The MBI-ES addresses three scales: *emotional exhaustion* ($\alpha=0.79$) measures feelings of being emotionally overextended and exhausted by one’s work, *depersonalization* ($\alpha=0.4$) measures an unfeeling and impersonal response toward recipients of one’s instruction, and *personal accomplishment* ($\alpha=0.76$) measures feelings of competence and successful achievement in one’s work.

Data analyses

The statistical analysis was performed using IBM SPSS Statistics for Macintosh, Version 28.0. Armonk, NY: IBM Corp. Descriptive analyses of FFMQ (mindfulness), Maslach (teacher burnout), DASS-21 (depression, anxiety, and stress) and WHOQOL (quality of life) were performed. Next, we obtained Spearman correlation analysis among the instruments and sociodemographic variables (age, years working as a preschool teacher, number of

children in classroom, grade they teach in). Additionally, multiple regression analyses were performed to evaluate the relationship between FFMQ subscales and the different variables in this study: teacher burnout, stress, anxiety, depression, and quality of life. The regression models were adjusted for those variables that showed a significant correlation ($p<.05$) with at least one of the dependent variables. Each model added the FFMQ subdimensions in a single step. Finally, we explored whether the relationship between the level of mindfulness and the participant’s quality of life was mediated by the level of burnout, anxiety, depression, or stress. The mediation analysis considered the global score of the FFMQ and its dimensions that showed significant associations with the Maslach inventory or DASS in the regression analysis and a significant relationship between the Maslach inventory or DASS and quality of life in the correlation analysis. According to recent recommendations, the relationship between FFMQ and quality of life would be non-necessary to perform a mediation analysis [78, 79]. Due to the small sample size and the distributions of the variables, 95% bootstrap confidence intervals were estimated for regression analysis and mediation models.

Results

Descriptive analyses

The preschool teachers and teacher assistants who participated in the present study obtained an average score of 133 (SD=24) in mindfulness (total FFMQ score) and 90 (SD=12.5) in quality of life (total WHOQOL-BREF score). DASS-21 average scores were on average within normal ranges (below the population mean): depression 2.5 (SD=3.1), anxiety 3.5 (SD=3.6), and stress 3.5 (SD=3.2). Regarding sample distribution, 80.9% of participants were within normal ranges for depression, 59.5% for anxiety, and 83.3% for stress. Participants in the mild and moderate categories were 14.3% for depression, 28.6% for anxiety, and 14.3% for stress. Severe score ranges were obtained by 4.8% of participants for depression and 7.1% for anxiety. No severe scores were obtained for stress. Extremely severe scores were obtained only for anxiety by 7.1% of the participants. It is important to note that 14.2% of the preschool teachers and teachers’ assistants presented severe to extremely severe levels of anxiety according to the DASS-21. Regarding teacher burnout scores, in Maslach’s subscales, the participants obtained 21 (SD=6.6) for emotional exhaustion, 6 (SD=2.4) for depersonalization, and 40 (SD=6.5) for personal accomplishment. MBI scores are considered low between 1 and 33 points, medium between 34 and 66 points, and high between 67 and 99. Therefore, participants were, on average, at medium levels of emotional exhaustion, low levels of depersonalization and high levels of personal accomplishment. Regarding sample distribution, 19% of the

participants presented high levels of emotional exhaustion and 10% of depersonalization. 7% of the sample presented low levels of personal accomplishment.

Correlation analyses

The correlation analysis showed that both the total score of the FFMQ and its dimensions were positively and significantly associated with the level of quality of life of the teachers (Table 2). The magnitude of these correlations ranged from $r_s = 0.37, p=.016$ for the relationship between awareness and quality of life and $r_s = 0.7$ for the relationship between the global level of mindfulness and quality of life. Regarding the relationship between mindfulness, anxiety, depression, and stress, we observed negative and significant associations in almost all cases, both when considering the total score of the FFMQ and its dimensions. Two exceptions were the relationship between observation and stress ($r_s = -0.21, p=.174$) and that between depression and awareness ($r_s = -0.17, p=.271$). We observed no relationship between the dimensions of the FFMQ and two of the dimensions of burnout: emotional exhaustion and depersonalization. However, there was a positive and significant relationship between the burnout dimension of personal fulfillment and the following FFMQ dimensions: describe ($r_s = 0.4, p=.008$), awareness ($r_s=0.44, p=.003$) and nonjudgment ($r_s = 0.4, p=.009$). The overall level of mindfulness was also significantly associated with the level of personal fulfillment ($r_s = 0.59, p<.001$). Finally, the level of quality of life was negatively correlated with anxiety ($r_s = -0.55, p<.01$), depression ($r_s = -0.71 p<.001$), stress ($r_s = -0.68, p<.001$) and emotional exhaustion ($r_s = -0.37 p=.015$). The level of personal fulfillment was positively associated with quality of life ($r_s = 0.49, p=.001$), and no association was observed between quality of life and depersonalization ($r_s = -0.12, p=.45$). Regarding the sociodemographic variables, only significant associations were observed between the level at which the teachers worked, emotional exhaustion ($r_s =0.4 p=.009$) and anxiety ($r_s = -0.32, p=.037$). This variable was included as a control variable in the regression models.

Regression analyses

The overall level of mindfulness, after controlling for the grade level at which the teacher works, showed significant associations with the level of personal fulfillment ($B=0.2; 95\% \text{ CI } [0.11; 0.3]$), depression ($B = -0.1; 95\% \text{ CI } [-0.15; -0.05]$), anxiety ($B = -0.13; 95\% \text{ CI } [-0.19, -0.08]$), stress ($B = -0.12; 95\% \text{ CI } [-0.17; -0.07]$) and quality of life ($B=0.52; 95\% \text{ CI } [0.39; 0.62]$). When analyzing the association between the facets of mindfulness and the level of anxiety, depression, and stress, it was observed that having a nonjudgmental attitude toward oneself was significantly related to the degree of depression ($B = -0.22; 95\%$

Table 2 Correlation analysis

	M	SD	Skwe	Kurt.	1	2	3	4	5	6	7	8	9	10	11	12	13	
1 Observe	32,5	6,8	0,05	-0,75	--													
2 Describe	28,9	5,9	-0,12	-1,03	0,49**	--												
3 Act awareness	28,4	6,0	-0,24	-0,53	-0,06	0,40**	--											
4 Nonjudge	27,6	6,0	0,06	-0,84	-0,03	0,30	0,53***	--										
5 Nonreact	22,1	4,7	0,31	0,14	0,70***	0,57***	-0,08	-0,07	--									
6 FFMQ	135,6	18,1	0,49	0,00	0,60***	0,84***	0,57***	0,55***	0,60***	--								
7 E.Exha.	21,1	6,6	0,55	-0,19	-0,12	-0,20	-0,25	-0,17	-0,20	-0,25	--							
8 Desper.	6,0	2,0	2,02	3,21	-0,26	-0,21	-0,11	0,08	-0,19	-0,21	0,21	--						
9 Pers. Acc.	39,9	6,5	-1,14	1,05	0,30	0,40**	0,44**	0,40**	0,25	0,59***	-0,28	-0,23	--					
10 Depression	2,5	3,1	1,58	1,89	-0,41**	-0,42**	-0,17	-0,33*	-0,35*	-0,55***	0,43**	0,34***	-0,51**	--				
11 Anxiety	3,5	3,6	1,09	0,44	-0,33*	-0,55***	-0,33*	-0,33*	-0,53***	-0,70***	0,17	0,12	-0,38**	0,60***	--			
12 Stress	3,5	3,2	0,84	-0,20	-0,21	-0,47**	-0,40**	-0,46**	-0,43**	-0,67***	0,43**	0,28	-0,56***	0,71***	0,77***	--		
13 QoL	90,1	12,5	-0,03	-0,68	0,45**	0,56***	0,37*	0,53***	0,42**	0,70***	-0,37*	-0,12	0,49**	-0,71***	-0,55***	-0,68***	--	

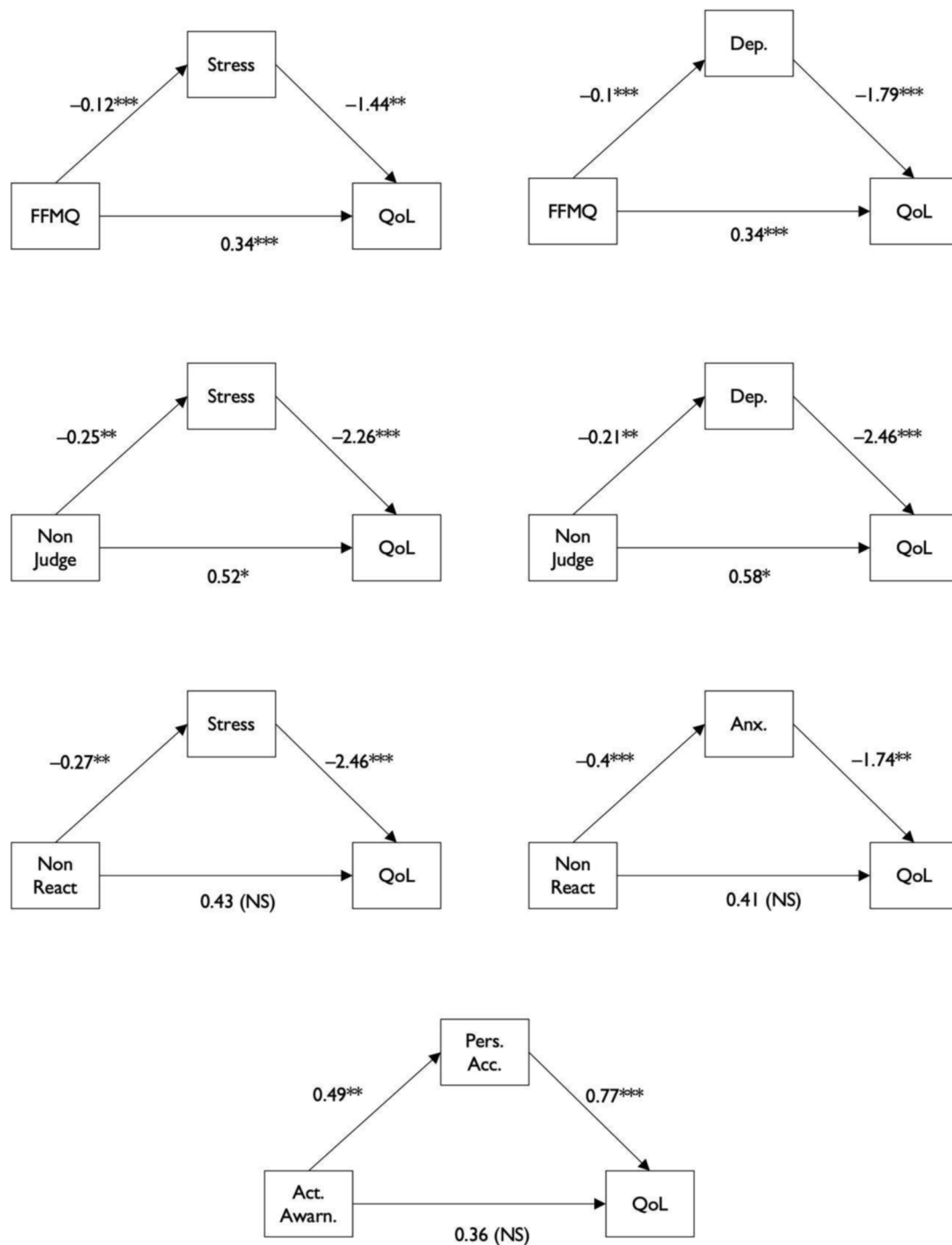


Fig. 1 Mediation analysis

CI [-0.39; -0.04]) and stress ($B = -0.22$, 95% CI [-0.37; -0.03]). Nonreact showed a significant negative effect on stress ($B = -0.28$; 95% CI [-0.53; -0.04]) and anxiety ($B = -0.35$; 95% CI [-0.63; -0.05]). Only the ability not to judge oneself positively affected quality of life after controlling for the other facets of mindfulness ($B = 0.95$; 95% CI [0.37; 1.62]). Consistent with the findings in the correlation analysis, we observed no significant association

between the dimensions of the FFMQ and emotional exhaustion or depersonalization (Table 3). Regarding personal fulfillment, only awareness was significantly associated with this domain ($B = 0.4$; 95% CI [0.01, 1.04]).

Mediation models

Given the results obtained in regression analysis, different mediation models were performed (Fig. 1). First, we

Table 3 Regression analysis

	Emotional exhaustion			Depersonalization			Personal accomplishment			Depression			Anxiety			Stress			Quality of life		
	B	LL	UL	B	LL	UL	B	LL	UL	B	LL	UL	B	LL	UL	B	LL	UL	B	LL	UL
Observe	0,08	-0,34	0,58	-0,05	-0,16	0,07	0,28	-0,14	0,67	-0,10	-0,28	0,11	0,01	-0,17	0,26	0,02	-0,17	0,27	0,52	-0,13	1,15
Describe	-0,06	-0,59	0,48	-0,03	-0,20	0,10	-0,05	-0,52	0,32	-0,12	-0,32	0,10	-0,11	-0,36	0,09	-0,08	-0,30	0,09	0,39	-0,43	1,01
Act Awareness	-0,24	-0,61	0,23	-0,04	-0,16	0,11	0,44	0,01	1,04	0,03	-0,16	0,20	-0,07	-0,28	0,13	-0,09	-0,29	0,09	0,18	-0,40	0,66
Non Judge	-0,05	-0,51	0,32	0,03	-0,12	0,18	0,22	-0,17	0,55	-0,22	-0,39	-0,04	-0,21	-0,40	0,02	-0,22	-0,37	-0,03	0,95	0,37	1,62
Non React	-0,51	-1,22	0,19	-0,02	-0,23	0,15	0,15	-0,50	0,76	-0,05	-0,30	0,18	-0,35	-0,63	-0,05	-0,28	-0,53	-0,04	0,49	-0,47	1,56
Level	2,47	0,57	4,21	-0,13	-0,81	0,69	1,33	-0,80	3,35	-0,76	-1,67	0,30	-1,01	-1,90	-0,07	-0,50	-1,28	0,39	0,08	-2,89	2,63
R ²	0,12			0,09			0,29**			0,31***			0,51***			0,43***			0,52***		

analyzed the mediating role of personal fulfillment, anxiety, depression, and stress in the relationship between the global level of mindfulness and quality of life. In these models, we observed a significant mediating role of depressive symptoms (indirect effect=0.17; 95% CI [0.55, 0.33]) and stress level (indirect effect=0.18; 95% CI [0.09; 0.3]), while anxiety level (indirect effect=0.07; 95% CI [-0.5; 0.19]) and degree of personal fulfillment (indirect effect=0.03; 95% CI[-0.05;0.15]) did not have a mediating role in this relationship. Then, we explored the mediating role of the level of depression and stress in the relationship between a person's ability not to judge themselves and their quality of life. The results of this analysis show that both depression (indirect effect=0.5; 1 95% CI [0.13, 0.87]) and stress (indirect effect=0.57; 95% CI [0.23; 0.98]) significantly mediate this relationship. Additionally, we explored the mediating role of anxiety and stress in the relationship between nonreact and quality of life, although in this case, no association was observed between nonreact and quality of life in the regression analysis; however, in the correlation analysis, we can observe a significant relationship. According to O'Rourke (2018), there are several situations where the total effect is not significant, and the mediation effect is significant. One of these cases is when both effects are equivalent (complete mediation); in this scenario, the power to detect the mediation effect would be higher than the power to detect the total effect, especially with large effects in small samples. In this research, we have a small sample and a relatively large effect in the correlation analysis but no relationship between nonreact and quality of life in the regression analysis. The mediation analysis showed that both anxiety (indirect effect=0.69; 95% CI [0.25;1.22]) and stress (indirect effect=0.67; 95% CI [0.24; 1.24]) totally mediated this relationship, compatible with O'Rourke's assumption. Finally, we analyzed whether personal fulfillment mediated the relationship between act with awareness and quality of life. In the latter case, we observed that personal fulfillment completely mediated this relationship (indirect effect=0.37; 95% CI [0.05, 0.74]). Together, these results show that there are variations in the mechanisms through which the different facets of mindfulness affect quality of life. The ability not to judge ourselves is associated with fewer depressive symptoms and stress, and it positively affects quality of life through these pathways. On the other hand, the ability not to react favored quality of life by reducing anxiety and stress. Finally, acting with awareness is the only facet of mindfulness that favors quality of life by affecting one of the dimensions of burnout.

Discussion

The present study is coherent with previous evidence regarding a positive relationship between mindfulness and quality of life and a negative relationship between mindfulness and variables related to teachers' mental health (depression, anxiety, and stress). The results contribute to this line of research by analyzing in a more specific way how these relations occur, that is, whether mindfulness and quality of life are directly related or if it is a mediated relation through reducing the effects of mental health-related variables. Furthermore, exploring what specific dimensions of mindfulness can be involved in this process.

As mentioned, a positive significant relation was found between mindfulness and the burnout dimension of personal fulfillment but not with the other dimensions of burnout (emotional exhaustion and depersonalization). The findings of the present study were consistent with previous research that found the FFMQ's *nonjudging* dimension to be a main predictor of mental health and quality of life. For instance, Cash and Whittingham [80] also performed a multiple regression analysis to determine which aspects of mindfulness as measured in the FFMQ would predict depression, anxiety, and stress, as measured by the DASS-21. They found that the main predictor was nonjudging. Additionally, Baer et al.'s [65] findings showed that nonjudging had the highest correlations with psychological symptoms, neuroticism, thought suppression, difficulty regulating emotion, and experiential avoidance compared to all other mindfulness facets. In another study focused on the relations among mindfulness and parenting variables, Corthorn and Milicic [81] found that nonjudgmental acceptance of self (FFMQ) and nonjudgmental acceptance of self as a mother (IMP) were the main predictors of mothers' levels of mental health as measured by the DASS-21, and nonjudgmental acceptance of self as a mother was also a main predictor of lower levels of parental stress. In a more recent study, Ortet et al. [82] found that the nonjudging facet of the FFMQ is a significant predictor of subjective well-being when personality is accounted for, suggesting that mindfulness training that intends to improve subjective well-being should focus on the nonjudging dimension.

As mentioned before, it was found that the ability not to react favored quality of life by reducing anxiety and stress. Some studies have found a relationship between nonreact and anxiety symptoms. For example, Diehl et al. [83] found that increased reactivity to experiences was more closely associated with generalized anxiety symptoms, while acting with awareness was associated with depressive symptoms.

Additionally, in line with the findings, the mediational models of the present study found, as presented in the [results](#) section, that mindfulness and quality of life would

be mediated by how the former affects symptoms of stress and depression. Furthermore, particularly relevant in the mediation, the FFMQ dimensions of nonjudging and nonreacting provided additional evidence related to the probable importance of nonjudging regarding its effects on mental health variables and how this relation affects the quality of life of teachers.

One of the main methodological limitations of this study is the small sample size. This can limit the generalization of the results, interfere with the estimates due to the low power to detect some relationships and possible problems in estimating confidence intervals. Despite this, previous studies in mediation models have suggested that even with samples between 34 and 50 participants [84], it is possible to maintain acceptable type I error rates using bootstrap methods such as those used in this study [85]. In the future, studies with a larger sample size would be necessary to confirm the results obtained. Another limitation of this study is the low reliability of the *depersonalization* subscale of Maslach's inventory in the sample, therefore the level of depersonalization should be interpreted with caution. Also, this finding could contribute to explain the absence of significant results when this variable is used in different statistical analysis. To assess the role of this variable a latent variable approach could be appropriated but the small sample size did not permit this.

It would be interesting in future studies to address possible differences in samples from other municipalities and regions within Chile and also comparison with other Latin American countries, to evaluate if and how contextual factors affect the results. For example, studies in rural areas where the risk and protective factors that affect mental health are different from those in urban areas, where the present study was conducted. [86, 87].

Considering the positive results in the present study regarding mindfulness and its relationship with mental health and quality of life, we also suggest future studies could evaluate the effects of mindfulness-based interventions focused on preschool teachers in similar contexts.

Author contributions

The authors confirm contributions to the paper as follows: study conception and design: C.C., V.P, N.T., K.R., P.P.; data collection: C.C, N.T, P.P.; analysis and interpretation of results: C.C., V.P.; draft manuscript preparation: C.C., V. P. All authors reviewed the results and approved the final version of the manuscript.

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Data availability

The data that support the findings of this study are available from the authors upon reasonable request.

Declarations

Ethics approval and consent to participate

All procedures performed in this study were approved by the bioethical committee of the Universidad Andres Bello and in accordance with the 1964 Helsinki declaration and its later amendments. Informed consent for participation and for the use of the results for research purposes was obtained individually from all the participants included in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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