Open Access Library Journal
2025, Volume 12, e12667
ISSN Online: 2333-9721
ISSN Print: 2333-9705

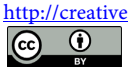
Are Socio-Demographics and Work Characteristics Still Important in Burnout among Preschool Teachers? Insights from Structured Latent Mean Analysis "SLMA"

Michael Osei Aboagye

Department of Interdisciplinary Studies, Akenten Appiah-Menka University of Skills Training and Entrepreneurial Development (AAMUSTED), Kumasi, Ghana
Email: aoseimichaelaboagye@yahoo.com, moaboagye@aamusted.edu.gh

How to cite this paper: Aboagye, M.O. (2025) Are Socio-Demographics and Work Characteristics Still Important in Burnout among Preschool Teachers? Insights from Structured Latent Mean Analysis "SLMA". *Open Access Library Journal*, **12**: e12667.
https://doi.org/10.4236/oalib.1112667

Received: November 19, 2024
Accepted: April 27, 2025
Published: April 30, 2025



Abstract

The severe consequences of occupational burnout highlight the need for extensive research into the risk factors contributing to its development, particularly among preschool teachers in low-and middle-income countries. To address this gap, the present study employs advanced statistical analytic technique (*i.e.*, Structured Latent Means Analysis "SLMA"), to investigate the relationship between teacher demographics, work characteristics, and the incidence of burnout among preschool teachers in a LMIC with challenging socioeconomic conditions. The SLMA results revealed that burnout syndrome varied significantly between socio-demographics and work characteristics. Practical implications for ECE job re-design and burnout management programs are discussed.

Subject Areas

Early Childhood Education

Keywords

Teacher Burnout, Preschool Education, Socio-Demographics, Work Characteristics

1. Introduction

Psychological burnout affects a wide range of professions, particularly those involving direct interactions with people, such as doctors, nurses, and teachers. The teaching and childcare sector is notably one of the most demanding fields globally

[1] [2]. Previous research indicates that early childhood education teachers experience high levels of stress [3] [4], often exceeding those reported by other professional groups [5]. For instance, a study by [6] found that early childhood teachers face numerous workplace stressors, including demands and pressures from parents, school administrators, and the young children they teach. As a result, they are considered at high risk for burnout syndrome. Burnout is characterized by three dimensions: emotional exhaustion (EE), defined as feelings of being emotionally drained and depleted of emotional resources; depersonalization (DP), described as a sense of detachment or estrangement from one's job and the individuals they serve, often accompanied by a cynical attitude; and reduced personal accomplishment (PA), conceived as diminished sense of competence and successful achievement in one's work [7]. Those suffering from burnout syndrome often experience psychological issues (such as anxiety and depression), as well as psychophysiological conditions (such as psychosomatic and musculoskeletal issues; [8], and occupational challenges such as presenteeism, absenteeism, and job dissatisfaction [9] [10].

The severe consequences of occupational burnout have led to extensive research on the risk factors contributing to its development among preschool teachers. While earlier studies have primarily focused on occupational and psychological risk factors, there has been relatively little research on socio-demographic and work characteristics, particularly in low- and middle-income countries where education faces significant policy challenges [11] [12]. Despite their scarcity, studies that examine baseline characteristics—such as age, sex, ethnicity, religion, marital status, years of work experience, teacher parental attachment experience, academic qualifications, level of school taught, class size, and teacher-child ratio—suggest these factors are crucial. They play an important role in assessing, treating, and preventing burnout syndrome [4] [13]. However, findings from this research are often inconclusive and sometimes contradictory [13] [14], highlighting the need for further investigations. [15] note that the majority of cross-sectional studies examining the influence of socio-demographics and work characteristics on burnout incidence use less robust statistical techniques, often neglecting to account for measurement errors in burnout before comparing groups on burnout dimensions. To address these gaps, the present study employs a more sophisticated statistical technique—Structured Latent Mean Analysis (SLMA)—to examine the relationship between teacher demographics, work characteristics, and the incidence of burnout among preschool teachers in a low- and middle-income country.

2. Review of Relevant Literature

2.1. The Widespread Teacher Burnout Syndrome

The prevalence of burnout and specifically teacher burnout is not a phenomenon unique to the 21st century. It was first recognized during the industrial era of the 20th century in the [16] [17], where the emotional, mental, and physical well-being

of wage earners and volunteers were significantly affected [18]-[20]. [19] characterized burnout as an occupational hazard, and early research on burnout primarily focused on service professions [21] [22].

In the field of education, teachers became a primary focus of burnout studies in the late 1970s when organizations like the NEA in the U.S. recognized the phenomenon as a threat to teachers' well-being, professional development, and the future of education [18]. The proliferation of published studies and the rise in teacher participation in burnout workshops during this period underscored the widespread concern and severity of burnout [18]. Over the past four decades, the exponential increase in burnout research highlights its prevalence and the growing awareness of its detrimental impact on teacher well-being, students' outcomes and school organizational growth as a whole [16] [19] [23] [24].

Teachers are particularly susceptible to burnout due to the service-oriented nature of their profession [25] [26]. [27] attributes the high prevalence of burnout among service professionals, especially teachers, to the heavy emotional involvement required by their job responsibilities. In this context, [28] notes that preschool teachers are even more prone to burnout.

The classification of teachers as a group at high risk for burnout is supported by research from both developed and developing nations [29] [30]. Thus, teacher burnout transcends geographic and cultural boundaries, although much of the existing evidence comes from industrialized countries. However, empirical studies on burnout risk factors, particularly individual and organizational-level factors, are scarce in sub-Saharan African countries. In the SSA region, burnout outcomes such as mental health deterioration, low job satisfaction, and high attrition rates among teachers are prevalent [28] [31]. Therefore, the lack of research underscores the need to investigate socio-demographic risk factors for burnout in sub-Saharan Africa. The current study aims to address this gap.

2.2. Teacher-Personal (Demographic) Factors and Burnout Incidence

Research on teacher burnout acknowledges that individual-level variables (such as age, sex, and academic qualification) significantly correlate with burnout dimensions. For example, some studies have found that older teachers are more susceptible to emotional exhaustion, whereas younger teachers are more prone to depersonalization [32]-[34]. However, other studies [35]-[37] indicate that younger teachers are at greater risk of experiencing depleted resources and emotional exhaustion. Additionally, research by [33] suggests that the relationship between age and burnout is nonlinear. When assessing the relationship between burnout and gender, female teachers generally report higher levels of burnout than their male counterparts [13] [14], particularly in terms of emotional exhaustion [38]. However, a recent study by [37] argues that gender is unrelated to burnout dimensions. With burnout and academic qualification, teachers with higher academic qualifications (such as a master's degree) have been identified as more prone to burnout than those with a diploma [15]. Contradictory findings exist, though; for example,

[36] found that teachers with lower academic qualifications reported higher levels of emotional exhaustion and depersonalization than those with higher qualifications, while [39] found no significant association between academic qualification and burnout.

Marital status and having children are also identified as risk factors for burnout [12] [14]. Some studies find that single teachers record higher levels of depersonalization and emotional exhaustion compared to married teachers or those with children [14] [40]. Conversely, other research suggests that married teachers and those with children are more susceptible to emotional exhaustion due to non-school responsibilities, such as household chores [41] [42]. Nevertheless, [4] [43] claim that burnout dimensions are unrelated to marital status. These inconclusive outcomes call for more investigation into individual-level factors and burnout among teachers.

2.3. Organizational-Level Variables and Burnout Incidence

The complex and evolving nature of burnout syndrome underscores school organizational factors as critical antecedents. Generally, teachers with fewer years on the job experience higher stress and burnout levels than those with longer service terms [36]. However, other studies have found that teachers with more years of experience show higher levels of emotional exhaustion [44] [45]. The type of school in which teachers work is also a significant predictor of burnout: private school teachers tend to experience higher levels of emotional exhaustion and depersonalization compared to public school teachers [46]. However, some studies report the opposite, finding that public school teachers encounter more burnout than private school teachers [47] [48].

A significant association has also been found between burnout and class size, with larger classes correlating with a higher prevalence of emotional exhaustion and depersonalization compared to smaller classes [37] [49].

Studies have also found variations in burnout symptoms across different job tasks in schools. According to [50], although both teachers and caregivers engage in significant emotional labor, those caring for vulnerable student populations—such as children with disabilities or those experiencing emotional or behavioral difficulties—often experience deeper emotional investment. This leads to a more severe emotional exhaustion compared to their counterparts handling primarily academic tasks. Similarly, [51] emphasize that caregivers often work long hours and may lack the time or resources to recover from the emotional toll of their work, resulting in more intense burnout compared to classroom teachers.

It is important to note that research findings on the association between organizational-level variables and burnout are inconclusive [36], necessitating further investigation into these factors. In response to calls for further exploration of the role of socio-demographic and school organizational factors in preschool teacher burnout, particularly in low- and middle-income countries, this study aims to inform interventions by examining whether these variables are significantly associated

with burnout dimensions.

3. Methods

3.1. Participants and Procedure

This study analyzed cross-sectional data from a study on preschool teachers' mental health in a lower-middle-income country facing significant policy challenges in children and youth programs. With the use of two stratification sampling technique based on administrative levels (regions and district) and sources of funding (government/public and non-government/private), a total 163 early childhood education centers were randomly selected. These centers were located in regional and district capitals, two second-tier towns, and two rural communities in Ghana [29] [31]. These cities, towns and villages host a various cultural, ethnic, economic, technological, and administrative activities, with preschools attracting children and teachers from diverse economic and socio-cultural backgrounds.

The preschools included in the study had two classes (KG 1 and KG 2 for children aged 4 to 6 years) and two to four teachers. No more than two teachers were sampled from each preschool center. If a center had more than two teachers, two were randomly selected for data collection –one from KG 1 and one from KG 2 [29] [31]. Data were collected using self-reported questionnaires, resulting in a baseline sample of 594 participants.

3.2. Measures

3.2.1. Teacher Burnout

Teacher Burnout was assessed using the 22-item, 3-factor Maslach Burnout Inventory–Educators Survey (MBI-ES), rated on a 7-point scale (1 = Never, 7 = Everyday). The emotional exhaustion (EE) subscale measures feelings of being emotionally overextended and exhausted by work (e.g., "I feel used up at the end of the workday"). The depersonalization (DP) subscale assesses teachers' perceptions of impersonal and insensitive responses to students (e.g., "I feel I treat students as if they were impersonal objects"). The personal accomplishment (PA) subscale measures feelings of competence and achievement in work (e.g., "I have accomplished many worthwhile things in this job"). Threshold scores indicating high burnout are above: 24 for EE, 9 for depersonalization, and 33 for personal accomplishment [52]. High scores on emotional exhaustion and depersonalization, combined with low scores on personal accomplishment, indicate burnout. Previous studies have demonstrated that the MBI-ES is highly reliable and valid for assessing teacher burnout [53].

3.2.2. Individual- and School Organizational-Level Variables

Individual-level variables: a set of questionnaires was administered to collect socio-demographic and organizational-level information. Gender was measured and coded as 1 (male) or 2 (female). Education level was measured on a scale from 1 (Diploma) to 4 (Master's degree or above). Marital status was categorized as 1 (married) and 2 (single). Age was initially measured as a continuous variable and

later categorized into: 1 (under 30 years), 2 (30 - 39 years), and 3 (40 or above).

School organizational-level variables included school type, classified as public (government/state-financed) or private (non-government-financed) preschools; class size, measured on a four-step scale (1 = less than 15 pupils, 2 = 16 - 25 pupils, 3 = 26 - 35 pupils, and 4 = 36 pupils or more); and job title, measured on a three-step scale (1 = Child Caring only, 2 = Teaching only, 3 = Teaching & Caring).

Work experience was treated as a continuous variable (measured in years) and later categorized into three groups: early career (0 = less than 7 years), mid-career (1 = 7 - 14 years), and advanced career (2 = 15 years or more) [6]. Table 1 presents information on the participants' socio-demographics and work characteristics.

Table 1. Descriptive statistics for participants' demographics and job characteristics (N = 594).

Sample demographics & job characteristics	Descriptive statistics	
	Frequency (%)	Mean ± SD
ECTs' Demographic Information		
Gender		
Female	360 (67.89%)	
Male	234 (32.11%)	
Age categories		33.51 ± 11.07
<30 years	217 (33.27%)	
30 to 39	210 (36.94%)	
≥40	167 (29.79%)	
Educational level		
Diploma	255 (29.98%)	
First degree	238 (54.35%)	
Master's +	101 (15.67%)	
Marital Status		
Married	385 (43.51%)	
Single	209 (40.43%)	
ECTs' Occupational Characteristics		
School Type		
Public	309 (50.29%)	
Private	285 (49.71%)	
Job Task		
Child Caring	53 (14.89%)	
Child Teaching	287 (37.33%)	
Caring & Teaching	254 (47.78%)	
Class Size		33.95 ± 6.21
≤15	32 (13.54%)	
16 to 25	79 (15.67%)	

Continued

26 to 35	249 (32.30%)	
>35	234 (38.49%)	
Work experience		9.73 ± 8.51
6 years or below	281 (45.07%)	
7 to 15 years	176 (35.01%)	
>15 years	17 (19.92%)	

Notes: SD—standard deviation for means, %—percentages.

3.3. Analysis

3.3.1. Data Preparation and Descriptive Statistics

Using the full-information maximum likelihood (FIML) estimator, missing data were examined and handled as missing at random (MAR) [54] [55]. The descriptive statistics and normality of the MBI-ES items were then analyzed [55] [56]. Maximum likelihood statistics (MLs) was used to analyze the data, as it is more robust to minor violations of univariate normality assumptions. Table 3 shows the descriptive statistics for the MBI-ES items.

3.3.2. Data Analytic Approach

Multi-group confirmatory factor analysis (MGCFA) and structured latent mean analysis (SLMA) were conducted using structural equation modeling. MGCFA was used to validate the instrument by testing measurement invariance (MI) of the MBI-ES across individual- and occupational-level variables. In line with [57] [58], five types of invariance were tested: configural, metric, scalar, residual, and structural.

Table 2. Summary of steps in measurement invariance and Model fit cut-off criteria.

Models	Constrained parameters	Free parameters	Comparison	Model fit cut-off criteria (N > 1000)		
				ΔCFI	ΔRMSEA	ΔSRMR
M1. Configural invariance	None	FL + Inter + Res + Var + Cov				
M2. Metric invariance	FL	Inter + Res + Var + Cov	M_1 - M_2	≤0.010	≤0.015	≤0.030
M3. Scalar invariance	FL + Inter	Res + Var + Cov	M_2 - M_3	≤0.010	≤0.015	≤0.010
M4. Partial scalar invariance	FL + Inter	Inter(NI) + Res + Var + Cov	M_2 - M_4	---	-----	
M5. Residual invariance	FL + Inter + Res	Inter(NI) + Res + Var + Cov + Fmean	M_4 - M_5	≤0.01	≤−0.01	≤0.001
M6. Structural invariance	FL + Inter + Res + Var + Cov	Inter(NI) + Fmean	M_4 - M_6	≤0.01	≤ 0.01	≤0.001

Note: FL = factor loadings; Inter = item intercepts; Res = item residual variance; Var = factor variance; Cov = factor covariance; NI = non-invariant items; Fmean = factor mean.

Consistent with [57] [59], changes in the CFI, RMSEA and SRMR indices were examined to evaluate the model fit of the MI tests. Given the sample size (N >

500), a change of less than 0.010 in the CFI, along with changes of less than .015 in the RMSEA and less than 0.030 in the SRMR, were considered evidence of equivalence [60]. Table 2 summarizes the MI test steps.

Comparisons of the MBI-ES subscales across individual- and organizational-level variables were made using SLMA [60] [61]. One group was set as the reference group, with the other group(s) treated as comparison group(s). The latent mean for the reference group was fixed at zero (0), and the latent group means for the comparison group(s) were estimated as deviations from the reference group mean [62]. Differences in latent means are not affected by the decision to fix the reference group's mean at zero while freely estimating those of the comparison groups [60]-[62].

4. Results

4.1. Perceived Burnout Syndrome among Preschool Teachers

Table 3 presents the percentages, frequencies, means, and standard deviations for the different levels of experienced burnout. Over half of the study cohort (61.11%) experienced high levels of emotional exhaustion, slightly above one-third experienced average levels, and a few (6.4%) experienced low levels of emotional exhaustion.

For depersonalization, less than a quarter (20.71%) of the participants reported low levels, a little below one-third (32.15%) reported average levels, and nearly half (47.14%) reported high levels. Regarding personal accomplishments, a little over two-thirds (69.53) of the teachers experienced low levels, about one-fifth (18.69%) experienced average levels, and a few (11.78) reported high levels.

Table 3. Frequency, percentage, mean and standard deviation of the range of experienced burnout, and perceptions of preschool teachers.

	Range of burnout experience in preschool teachers			
Burnout Subscales	Low (Lower Third)	Average (Middle third	High (Upper third)	Mean ± S.D
E.E	38 (7.4%) [14.48 ± 1.57]	193 (33.3%) [22.31 ± 2.77]	363 (59.3%) [37.85 ± 7.63]	30.94 ± 10.51
P.A	413 (71.9%) [45.80 ± 4.37]	111 (17.5%) [35.32 ± 2.02]	70 (10.5%) [27.07 ± 3.69]	41.99 ± 7.60
D.P	123 (22.8%) [5.35 ± .48]	280 (45.3%) [9.85 ± 1.75]	191 (31.9%) [16.16 ± 3.37]	10.84 ± 4.63

Note: EE—emotional exhaustion, PA—personal accomplishment, DP—depersonalization.

4.2. Psychometric Assessment

4.2.1. MI Test of the MBI-ES across Individual-Level Factors

To test the measurement invariance (MI) of the MBI-ES across individual-level factors, a multi-group confirmatory factor analysis (MGCFA) was conducted. This analysis examined: 1) equality of factor structure, 2) equality of the magnitude of factor loadings or scaling units, 3) subgroup differences in the means of the observed items, 4) equality of error variances, and 5) equality of factor variance of the MBI-ES items across groups defined by gender, age, academic qualification,

and marital status.

The results indicated that the three-factor MBI-ES model demonstrated a good fit for the gender, age, academic qualification, and marital status subgroups (see $M_{1a\text{-}e}$ Table 4). A simultaneous analysis with the least restrictive solution revealed strong metric invariance for all individual-level variables (see $M_{2a\text{-}e}$ Table 4).

Next, additional constraints were placed on item intercepts to test for scalar invariance. The AIC decreased, and the change in CFI (ΔCFI) was below the threshold, indicating strong scalar invariance for all variables (see $M_{3a\text{-}e}$ Table 4). The residual invariance ($M_{4a\text{-}e}$ Table 4) and structural invariance ($M_{5a\text{-}e}$ Table 4) models were then examined and found to have good fit, indicating strict factorial invariance across the study groups [57] [58] [63].

Table 4. Test of invariance for the MBI-ES across teacher self-related demographics: result of MGCFA.

Model	χ^2[df]	χ^2/df	CFI	RMSEA	SRMR	Comparison	ΔCFI	ΔRMSEA	ΔSRMR	AIC
Gender^g (Male: n = 234; female: n = 360)										
M_{1a}. Configural inv.	756.88 [315]	2.40	0.91	0.034	0.0697					1146.88
M_{2b}. Metric inv.	778.95 [343]	2.27	0.92	0.033	0.0696	M_1 - M_2	−0.01	0.001	0.0001	11112.95
M_{3c}. Strong factorial inv.	839.08 [377]	2.23	0.91	0.032	0.0697	M_2 - M_3	0.01	0.001	−0.0001	1105.08
$M4_d$. Residual inv.	990.03 [445]	2.23	0.90	0.032	0.0697	M_3 - M_4	0.01	0.000	0.0000	1120.03
$M5_e$. Structural inv.	863.01 [389]	2.22	0.91	0.032	0.0699	M_3 - M_5	0.00	0.000	−0.0002	1105.01
Age^g (<30 years: n = 217, 30 - 39 years: n = 210 and ≥40 years: n = 167)										
M_{1b}. Configural inv.	911.29 [420]	2.17	0.90	0.031	0.0519					1431.29
M_{2b}. Metric inv.	938.50 [462]	2.03	0.91	0.030	0.0519	M_1 - M_2	−0.01	0.001	0.0000	1374.50
M_{3c}. Scalar inv.	993.04 [513]	1.94	0.91	0.028	0.0519	M_2 - M_3	0.00	0.002	0.0000	1327.04
$M4_d$. Residual inv.	1126.80 [615]	1.83	0.90	0.027	0.0519	M3 - M4	0.01	0.001	0.0000	1256.80
$M5_e$. Structural inv.	1006.37 [531]	1.90	0.91	0.027	0.0519	M3 - M5	0.00	0.001	0.0000	1304.37
Educational level^g (Diploma: n = 255; First degree: n = 238; Master/above: n = 101)										
M_{1a}. Configural inv.	998.75 [525]	1.90	0.91	0.028	0.0697					1648.18
M_{2b}. Metric inv.	1058.32 [581]	1.82	0.91	0.026	0.0696	M_1 - M_2	0.00	0.002	0.0001	1596.32
M_{3c}. Scalar inv.	1119.46 [649]	1.72	0.91	0.025	0.0696	M_2 - M_3	0.00	0.001	0.0000	1521.46
M_{4d}. Residual inv.	1262.45 [785]	1.61	0.91	0.023	0.0697	M_3 - M_4	0.00	0.002	−0.0001	1392.45
M_{5e}. Structural inv.	1137.39 [673]	1.69	0.91	0.024	0.0695	M_3 - M_5	0.00	0.001	0.0001	1491.39
Marital Status^g (Married: n = 385; Single: n = 209)										
M_{1a}. Configural inv.	742.47 [315]	2.36	0.92	0.034	0.0697					1132.47
M_{2b}. Metric inv.	770.21 [343]	2.25	0.92	0.032	0.0697	M_1 - M_2	0.00	0.002	0.0000	1104.21
M_{3c}. Scalar inv.	798.01 [377]	2.12	0.92	0.031	0.0698	M_2 - M_3	0.00	0.001	−0.0001	1064.01
M_{4d}. Residual inv.	837.39 [455]	1.88	0.92	0.027	0.0697	M3 - M4	0.00	0.004	0.0001	967.39
M_{5e}. Structural inv.	800.22 [389]	2.06	0.92	0.030	0.0697	M3 - M5	0.00	0.001	0.0001	1042.22

Note: g—groups involved in the invariance test, inv.—invariance, TLI—Tucker Lewise Index; CFI—comparative fit index; RMSEA—root mean squar approximation; SRMR—standardized root mean square residuals, AIC—Akaike's information criterion.

4.2.2. MI Test of the MBI-ES across Organizational-Level Factors

MGCFA was conducted to test the measurement invariance (MI) of the MBI-ES items across different groups based on school type, job task, class size, and work experience. The configural invariance model ($M_{1a\text{-}e}$ Table 5) showed a good fit for all groups concerning job characteristics. After imposing constraints on factor loadings, AIC values decreased and the CFI values met the threshold, indicating strong metric invariance (see $M_{2a\text{-}e}$ Table 5). The models for scalar invariance ($M_{3a\text{-}e}$ Table 5) were also supported for all groups. Subsequently, the residual invariance ($M_{4a\text{-}e}$ Table 5) and structural invariance ($M_{5a\text{-}e}$ Table 5) models were examined and found to be acceptable, demonstrating strict factorial invariance across the groups.

Table 5. Test of invariance of the MBI-ES across school/job-related factors; result of MGCFA.

Model	χ^2[df]	χ^2/df	CFI	RMSEA	SRMR	Comparison	ΔCFI	ΔRMSEA	ΔSRMR	AIC
School Type[g] (Public: n = 309; Private: n = 285)										
M_{1a}. Configural inv.	727.51 [315]	2.31	0.92	0.032	0.0697					1117.51
M_{2b}. Metric inv.	738.71 [343]	2.15	0.92	0.030	0.0702	M_1 - M_2	0.00	0.002	−0.0005	1072.71
M_{3c}. Scalar inv.	751.80 [377]	1.99	0.93	0.028	0.0702	M_2 - M_3	−0.01	0.002	0.0000	1017.80
$M4_{d}$. Residual inv.	787.55 [455]	1.77	0.93	0.025	0.0698	M3 - M4	0.00	0.003	0.0004	917.55
M5e. Structural inv.	756.94 [389]	1.95	0.93	0.027	0.0696	M3 - M5	0.00	0.001	0.0006	998.94
Job Task[g] (Child Caring: n = 53; Teaching: n = 287, Caring & Teaching: n = 254)										
M_{1a}. Configural inv.	871.04 [420]	2.07	0.91	0.030	0.0697					1391.04
M_{2b}. Metric inv.	918.70 [462]	1.99	0.91	0.029	0.0699	M_1 - M_2	0.00	0.001	−0.0002	1354.70
M_{3c}. Scalar inv.	985.860 [513]	1.92	0.91	0.028	0.0699	M_2 - M_3	0.00	0.001	0.0000	1319.86
M_{4d}. Residual inv.	1124.31 [615]	1.83	0.90	0.026	0.0697	M_3 - M_4	0.01	0.002	0.0002	1254.31
M_{5e}. Structural inv.	1001.24 [531]	1.89	0.91	0.027	0.0701	M_3 - M_5	0.00	0.001	−0.0002	1299.24
Class Size[g] (≤15: n = 32, 16-25: n = 79, 26-35: n = 249, ≥35: n = 234)										
M_{1a}. Configural inv.	1050.48 [525]	2.00	0.90	0.029	0.0697					1700.48
M_{2b}. Metric inv.	1087.76 [581]	1.87	0.90	0.027	0.0699	M_1 - M_2	0.00	0.002	−0.0002	1625.76
M_{3c}. Scalar inv.	1135.01 [649]	1.75	0.91	0.025	0.0699	M_2 - M_3	−0.01	0.002	0.0000	1537.01
M_{4d}. Residual inv.	1294.89 [785]	1.65	0.90	0.023	0.0697	M_3 - M_4	0.01	0.002	0.0002	1424.89
M_{5e}. Structural inv.	1157.94 [673]	1.72	0.91	0.025	0.0699	M_3 - M_5	0.00	0.000	0.0000	1511.94
Work Experience[g] (≤6 years: n = 281, 7 to 15 years: n = 176, >15 years: n = 137)										
M_{1a}. Configural inv.	876.22 [420]	2.09	0.91	0.030	0.0697					1396.22
M_{2b}. Metric inv.	903.73 [462]	1.96	0.91	0.028	0.0698	M_1 - M_2	0.00	0.002	−0.0001	1339.73
M_{3c}. Scalar inv.	929.45 [513]	1.81	0.92	0.026	0.0698	M_2 - M_3	−0.01	0.002	0.0000	1263.45
M_{4d}. Residual inv.	1019.73 [615]	1.66	0.92	0.024	0.0697	M_3 - M_4	0.00	0.002	0.0001	1149.73
M_{5e}. Structural inv.	939.38 [531]	1.77	0.92	0.025	0.0698	M_3 - M_5	0.00	0.001	0.0000	1237.38

Note: g—groups involved in the invariance test, inv.—invariance, TLI—Tucker Lewise Index; CFI—comparative fit index; RMSEA—root mean squar approximation; SRMR—standardized root mean square residuals, AIC—Akaike's information criterion.

4.3. Burnout Associations with Socio-Demographics and Work Characteristics

4.3.1. Burnout and Teacher Demographics

The latent mean scores for burnout across teacher demographics are shown in Table 6 and further examined in Figures 1-4.

Table 6. Association of work stressors, resources and psychological burnout to teachers' demographics and health factors: results of structured latent means analysis

Socio-demographics and work characteristics		Psychological Burnout		
		EE	Dp	PA
Gender				
	Female[a]			
	Male	−2.24**	−0.87	3.64***
Age Category				
	<30	−0.13	0.41	−1.23
	30 - 39	0.57	1.4	−0.22
	<40[a]			
Educational Level				
	Diploma	2.50**	0.81	−2.77**
	College/University	3.29***	1.30	−2.97***
	Master/above[a]			
Marital status				
	Single[a]			
	Married	−3.29	−0.15	−0.92
School Type				
	Private School[a]			
	Public School	−3.09***	2.64**	0.38
Job Task				
	Teaching & Caring[a]			
	Caring	−2.41**	−0.42	−2.09*
	Teaching	−2.07*	−2.61**	3.82***
Work Experience				
	<7 years[a]			
	7 to 14	−2.02*	−2.45**	2.69**
	≥15	2.82***	−0.69	3.55***
Class Size				
	≤15 pupils	−3.50***	−2.17*	0.76
	16 - 25 pupils	−2.15*	−0.13	1.40
	26 - 35 pupils	−2.97***	−0.68	2.28**
	>35 pupils[a]			

Note: Values are Z-scores for latent group means comparison; EE—emotional exhaustion, Dp—depersonalisation, personal accomplishment, a = reference groups (with latent means fixed at zero). ***p < 0.001, **p < 0.01, *p < 0.05.

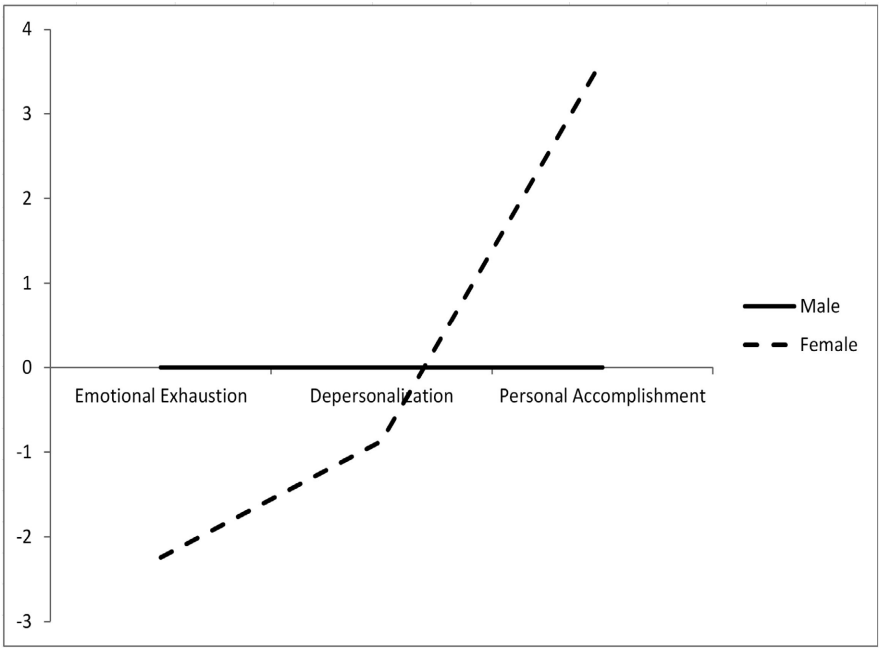


Figure 1. Trends of burnout syndrome across gender.

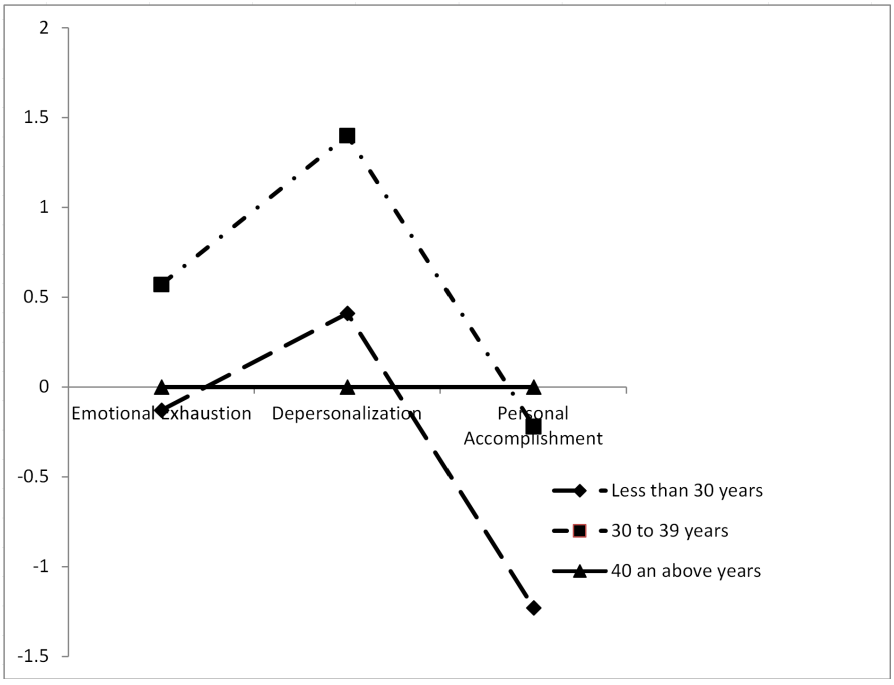


Figure 2. Trends of burnout syndrome across age.

Burnout and gender: Male teachers (comparison group) had lower latent means for emotional exhaustion and depersonalization but higher latent mean for personal accomplishment compared to female teachers (reference group). These differences were significant for emotional exhaustion ($z = -2.24$, $p < 0.001$) and personal accomplishment ($z = 3.64$, $p < 0.001$), but not for depersonalization ($z = -0.87$, $p > 0.05$).

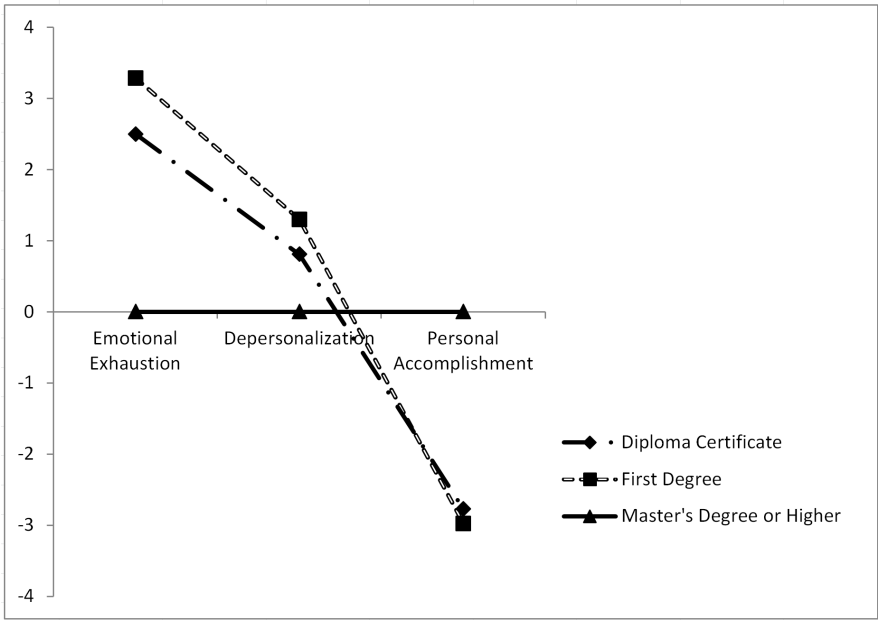


Figure 3. Trends of burnout syndrome across education.

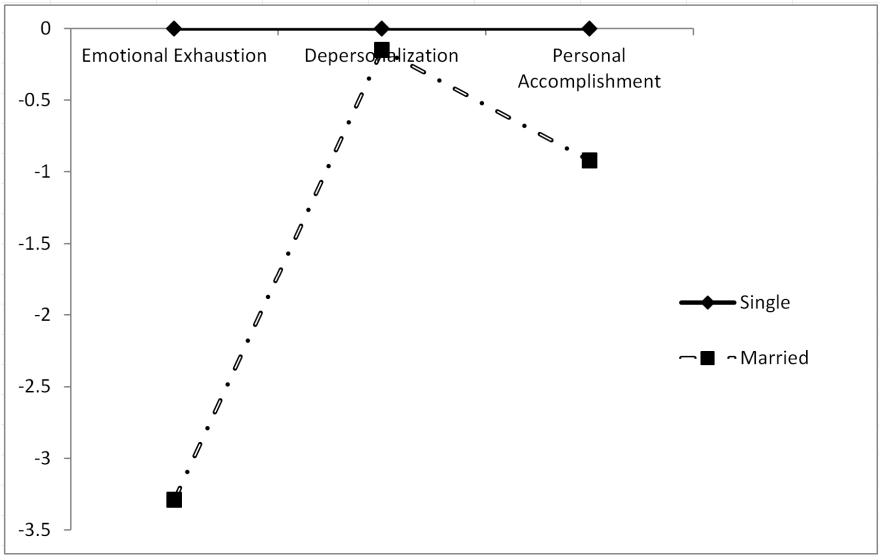


Figure 4. Trends of burnout syndrome across marital status.

Burnout and age: Teachers under 30 years old experienced lower emotional exhaustion ($z = -0.13$, $p > 0.05$) and personal accomplishment ($z = -1.23$, $p > 0.05$), but higher depersonalization ($z = 0.41$, $p > 0.05$) compared to those aged 40 and above. However, these differences were not statistically significant. Teachers aged 30 to 39 reported higher emotional exhaustion ($z = 0.57$, $p > 0.05$) and depersonalization ($z = 1.40$, $p > 0.05$), but lower personal accomplishment ($z = -0.22$, $p > 0.05$) than those aged 40 and above. Again, these differences were not statistically significant.

Burnout and academic qualifications: Teachers with First Degrees and Diplomas (comparison groups) scored higher in emotional exhaustion and depersonalization,

but lower in personal accomplishment, compared to teachers with Master's degree or higher (reference group). These differences were significant for emotional exhaustion among First Degree holders ($z = 3.29$, $p < 0.05$) and Diploma holders ($z = 2.50$, $p < 0.05$), as well as for personal accomplishment among First Degree holders ($z = -2.97$, $p < 0.05$) and Diploma holders ($z = -2.77$, $p < 0.05$). Differences in depersonalization were not significant for either group (First Degree: $z = 1.30$, $p > 0.05$; Diploma: $z = 0.81$, $p > 0.05$).

Burnout and marital status: Single teachers (reference group) had lower latent mean scores in emotional exhaustion and depersonalization but higher scores in personal accomplishment compared to married teachers (comparison group). The difference was significant only for emotional exhaustion ($z = -3.29$, $p < 0.05$), but not depersonalization ($z = -0.15$, $p > 0.05$) or personal accomplishment ($z = -0.92$, $p > 0.05$).

4.3.2. Burnout and Job Characteristics

Based on the MI test, LSMA was conducted to examine latent mean differences across organizational-level variables. The results are presented in Table 6 and further illustrated in Figures 5-8.

Burnout and School Type: Private school teachers (reference group) had higher latent mean scores for emotional exhaustion but lower scores for depersonalization and personal accomplishment compared to public school teachers (comparison group). The differences in emotional exhaustion ($z = -3.09$, $p < 0.05$) and personal accomplishment ($z = 2.64$, $p < 0.05$) were significant, whereas the difference in depersonalization ($z = 0.38$, $p > 0.05$) was not.

Burnout and Job Task: Preschool teachers whose job task was solely child care (comparison group) had lower scores in emotional exhaustion, depersonalization, and personal accomplishment compared to those involved in both teaching and caring (reference group). These differences were significant for emotional exhaustion ($z = -2.41$, $p < 0.05$) and personal accomplishment ($z = -2.09$, $p < 0.05$), but not for depersonalization ($z = -0.42$, $p > 0.05$).

Additionally, teachers whose job task was only teaching (comparison group) had significantly lower scores in emotional exhaustion ($z = -2.07$, $p < 0.05$) and depersonalization ($z = -2.61$, $p < 0.05$), but higher scores in personal accomplishment ($z = 3.82$, $p < 0.05$), compared to those involved in both teaching and caring.

Burnout and Work Experience: Mid-career teachers (comparison group) had significantly lower scores than early career teachers (reference group) in emotional exhaustion ($z = -2.02$, $p < 0.05$) and depersonalization ($z = -2.45$, $p < 0.05$), but higher scores in personal accomplishment ($z = 2.69$, $p < 0.05$). Advanced career teachers also had lower scores in depersonalization ($z = -0.69$, $p > 0.05$), but higher scores in emotional exhaustion ($z = 2.82$, $p < 0.05$) and personal accomplishment ($z = 3.55$, $p < 0.05$), compared to early career teachers.

Burnout and Class/Group Size: Teachers with smaller classes (≤15 pupils), relatively small classes (16 - 25 pupils), and relatively large classes (26 - 35 pupils) had lower scores in emotional exhaustion and depersonalization, but higher scores

in personal accomplishment compared to teachers with large classes (≥35 pupils). The differences in emotional exhaustion were all significant (≤15 pupils: $z = -3.50$, $p < 0.05$; 16 - 25 pupils: $z = -2.15$, $p < 0.05$; 26 - 35 pupils: $z = -2.97$, $p < 0.05$).

For depersonalization, significant differences were found only for teachers in smaller classes (≤15 pupils: $z = -2.17$), but not for teachers in relatively small (16 - 25 pupils: $z = -0.13$, $p > 0.05$) or relatively large classes (26 - 35 pupils: $z = -0.68$, $p > 0.05$). Regarding personal accomplishment, significant differences were found for teachers in relatively large classes (26 - 35 pupils: $z = 2.28$, $p < 0.05$), but not for those in small classes (≤15 pupils: $z = 0.76$, $p > 0.05$) or relatively small classes (16 - 25 pupils: $z = 1.40$, $p > 0.05$).

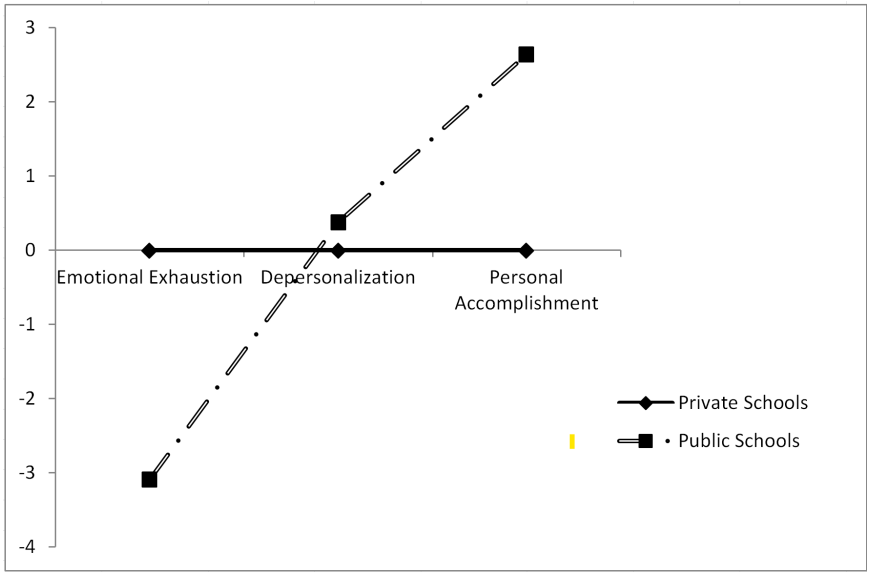


Figure 5. Trends of burnout syndrome across school type.

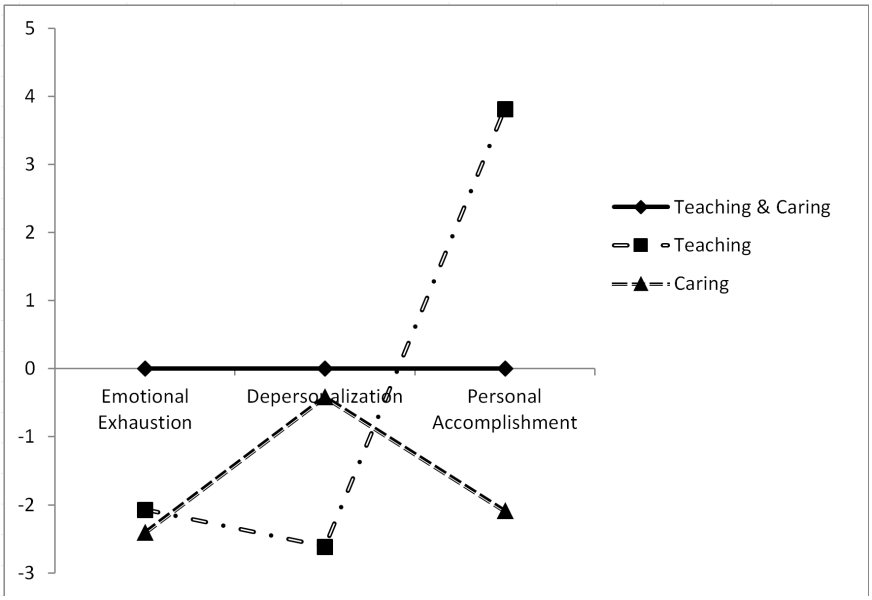


Figure 6. Trends of burnout syndrome across job tasks.

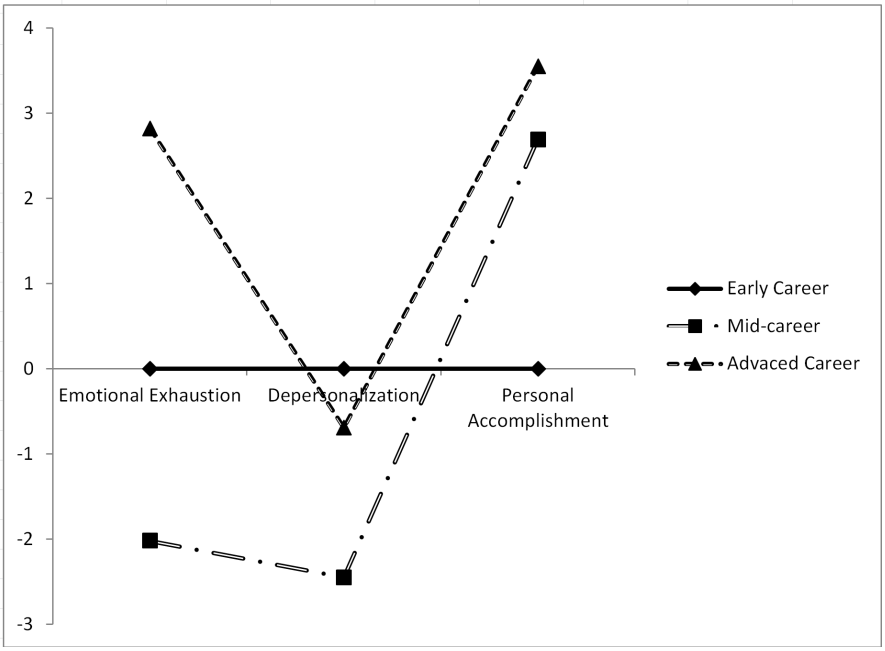


Figure 7. Trends of burnout syndrome across work experience.

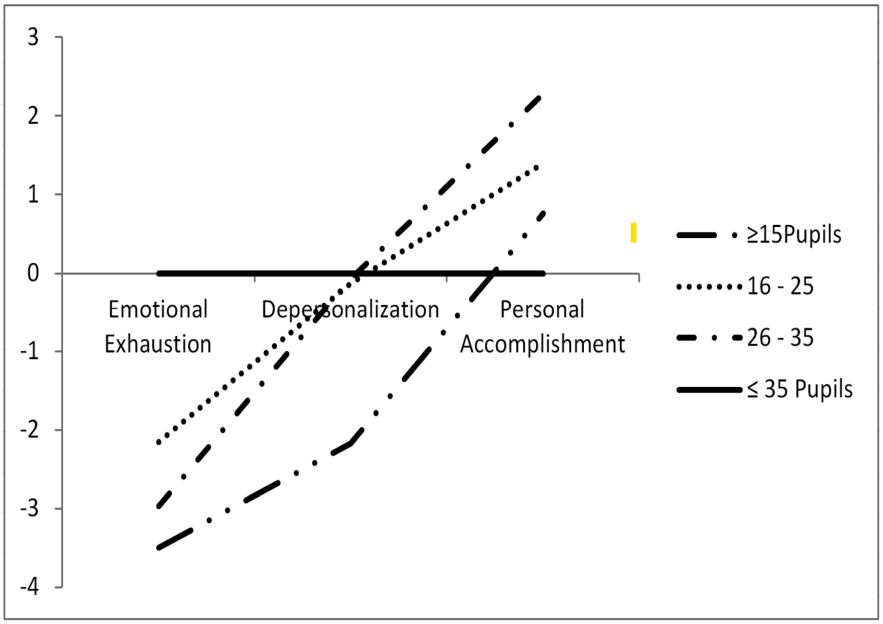


Figure 8. Trends of burnout syndrome across class size.

5. Discussion

5.1. Summary of Results

The present cross-sectional study explored the role of socio-demographics and work characteristics in burnout incidence among preschool teachers in a low- and middle-income country. Prior cross-sectional studies found teacher socio-demographics and job characteristics as precursors of burnout in developed countries [15]. Extending on the risk factors for preschool teacher burnout in a country

with significant challenges in employee mental health policies, this study offers valuable insights into the role of socio-demographics and organizational-level factors in burnout syndrome.

5.1.1. Burnout across Teacher Demographics

Burnout and Gender: Male teachers report significantly lower levels of emotional exhaustion compared to female teachers. This confirms the outcome of earlier studies [13] [14] [64], that extra societal gender roles overburden female teachers to be emotionally drained, while men are expected to contain their emotions leading to alienation [64] [65]. Also, there were no significant differences in depersonalization scores between male and female teachers, suggesting that depersonalization may be similarly experienced across genders. Furthermore, male teachers report significantly higher levels of personal accomplishment compared to female teachers. This could be influenced by differences in career progression opportunities, recognition, and support for these groups of teachers [14].

Burnout and Age: There were no significant differences in emotional exhaustion, depersonalization, or personal accomplishment across age groups, though some trends were observed: Teachers under 30 years old showed lower emotional exhaustion and personal accomplishment but higher depersonalization compared to those aged 40 and above. Also, teachers aged 30 to 39 had higher emotional exhaustion and depersonalization but lower personal accomplishment compared to those aged 40 and above. This runs counter to the studies conducted by [35]-[37], who indicate a general tendency of young teachers suffering from burnout. However, [33] suggest that the relationship between age and burnout is nonlinear. They attribute this nonlinear pattern to the fact that burnout symptoms change based on the different life stages of teachers.

Burnout and Academic Qualifications: Teachers with First Degree and Diploma Certificates reported significantly higher levels of emotional exhaustion compared to those with Master's degree or higher. Depersonalization levels were higher for these groups, though not significant.

Also, teachers with higher academic qualifications reported significantly higher levels of personal accomplishment. These findings are similar to those found in prior studies. For example, [36] found that teachers with lower academic qualifications reported higher levels of emotional exhaustion and depersonalization than those with higher qualifications.

Burnout and Marital Status: Single teachers reported significantly lower levels of emotional exhaustion compared to married teachers. There were no significant differences in depersonalization and personal accomplishment between single and married teachers. Similar findings had been captured by prior studies [14] [40] [66], which suggested that married teachers are more susceptible to emotional exhaustion due to non-school responsibilities, such as household chores.

5.1.2. Burnout across Job Characteristics

Burnout and school type: The results indicate distinct patterns of burnout

between private and public preschool school teachers. Private preschool teachers scored higher levels of emotional exhaustion but lower levels of depersonalization and personal accomplishment compared to their public preschool counterparts. Specifically, the private preschool teachers had significantly higher emotional exhaustion, suggesting that these teachers experience more intense emotional fatigue. This could possibly be attributed to the unique demands and higher expectations within private preschool settings, such as higher performance standards, involvement in extracurricular activities, and potentially greater parental involvement as indicated by [48]. The difference in depersonalization between private and public school teachers was not significant, suggesting that the factors contributing to depersonalization from teachers might be similar across both school types. Furthermore, private preschool teachers felt significantly lower personal accomplishment compared to their public preschool counterparts. This could be due to higher expectations and pressure in private schools and teachers feeling less of recognition in their roles, as well as issues of job security, reward and the lack of career opportunities, which might make it harder for them to feel a sense of accomplishment [48] [67].

Burnout and job task: Preschool school teachers involved in both teaching and caring tasks reported significantly higher emotional exhaustion and lower accomplishment compared to those involved solely in child care or teaching. This highlights the added stress and difficulty of balancing multiple demanding roles at the preschool center [50]. There were no significant differences in depersonalization scores between the groups, indicating that the depersonalization component of burnout might not be as strongly influenced by job tasks as emotional exhaustion and reduced personal accomplishment, confirming the group difference assumptions of previous studies [50] [68].

Burnout and work experience: The study's findings showed that mid-career teachers experience significantly lower emotional exhaustion and depersonalization compared to early-career teachers, indicating that experience and familiarity with the job buffer against certain aspects of burnout [36]. Also, mid-career and advanced career teachers report higher levels of personal accomplishment than early-career teachers. This could be due to the accumulation of skills, experience, and a greater sense of professional identity over time, as suggested by [36]. Despite higher personal accomplishment, advanced career teachers also experience higher emotional exhaustion, potentially due to prolonged exposure to job stressors and possibly increased responsibilities [44] [45].

Burnout and class/group size: Teachers with smaller class sizes reported significantly lower emotional exhaustion and depersonalization compared to those with larger classes. This indicates that managing fewer students can reduce stress and strain. Teachers with relatively large classes (26 - 35 pupils) report significantly higher personal accomplishment compared to those with very large classes (>35 pupils). This suggests that while larger class sizes are challenging, they can still offer opportunities for teachers to feel effective and accomplished, provided they

are not excessively large [37] [49].

5.2. Practical Implication

The current study illuminates the role of socio-demographics and job characteristics in burnout syndrome and highlights them as risk factors of burnout, contributing to ECE job redesign in a low- and middle-income country. Accordingly, the study offers the following important practical implications.

5.2.1. Burnout and Gender

Gender-Sensitive Workload Management: Schools should evaluate and adjust workload distribution to ensure it is equitable and manageable for all teachers. Female teachers, in particular, may benefit from such policies that help balance their professional responsibilities with personal and family commitments.

Implementation of stress Management Programs: schools should develop and implement stress management programs tailored to the unique needs of female teachers to help reduce their levels of emotional exhaustion.

Career Advancement Opportunities: Increasing access to career progression opportunities, recognition, and support for female teachers can help improve their sense of personal accomplishment. Schools, therefore, should consider mentorship programs, leadership training, and performance recognition tailored to address gender disparities.

5.2.2. Burnout and Academic Qualifications

Promoting Higher Education: Encouraging and supporting teachers to pursue advanced degrees can help reduce emotional exhaustion and enhance their sense of personal accomplishment. Schools might offer incentives such as tuition reimbursement, professional leave, or recognition for obtaining advanced qualifications.

Professional Development and Training: Providing professional development and training opportunities that cater for teachers with varying levels of academic qualifications can help mitigate burnout. Tailoring these opportunities to address specific gaps and needs can be particularly beneficial.

Recognition and Rewards: Implementing systems that recognize and reward the contributions of teachers with diverse qualifications can help boost morale and personal accomplishment. Recognition programs should celebrate both academic achievements and practical contributions to the school community.

5.2.3. Burnout and Marital Status

Work-Life Balance Support: Schools should consider offering flexible working arrangements and resources to help married teachers balance their professional and personal lives. This could include options for part-time work, job sharing, or flexible scheduling.

Family-Friendly Policies: Implementing family-friendly policies, such as parental leave, childcare support, and family health benefits, can help married teachers manage their responsibilities and reduce emotional exhaustion.

Stress Reduction Programs: Providing stress reduction programs and resources, such as counseling services, wellness programs, and support groups, can help all teachers, particularly married teacher with additional family responsibilities, manage their stress levels more effectively.

5.2.4. Burnout and Job Task

Role Clarification and Support: Schools should clearly define job roles and responsibilities and provide adequate support for teachers who are required to juggle both teaching and caring responsibilities. For example, offering specialized training and resources for managing dual roles more effectively can help alleviate the burnout associated with these tasks.

Workloads balance: Adjusting workloads to ensure that teachers involved in dual tasks are not overwhelmed can mitigate their emotional exhaustion while improving their sense of personal accomplishment. School leaders can provide adequate planning and preparation time for teachers to help reduce emotional exhaustion and enhance their sense of accomplishment.

Workshops Training on dual-role management: Offering training that focuses on managing multiple roles effectively can empower teachers to handle their responsibilities without feeling overly exhausted.

5.2.5. Burnout and School Type

Workload and expectations management: Private schools should evaluate and manage teacher workloads and expectations to prevent emotional exhaustion. This could involve redistributing tasks, reducing extracurricular demands, and setting realistic performance standards.

Support and Recognition Programs: Private schools may need to invest more in mental health resources (wellness programmes) and support systems, such as counseling and stress management workshops, to help reduce emotional exhaustion among their teachers. Such systems can create a supportive and collaborative work environment to help mitigate emotional exhaustion and improve overall job satisfaction. Implementing recognition and reward systems can also enhance teachers' sense of achievement.

Managing parental involvement: Private school leaders should establish clear communication channels and boundaries with parents to help manage their expectations and reduce the additional stress placed on teachers.

5.2.6. Burnout and Work Experience

Mentorship programmes: Implementing mentorship programs where mid-career and advanced career teachers support early-career teachers can help reduce burnout in less experienced teachers and enhance personal accomplishment across all experience levels.

Career development opportunities: Providing opportunities for professional growth and development at all career stages can help maintain motivation and reduce emotional exhaustion. Offering career development opportunities that provide a sense of progression and accomplishment can keep teachers motivated

and engaged throughout their careers. This includes advanced training, leadership roles, and professional recognition. Moreover, recognizing and rewarding the contributions of advanced career teachers can help mitigate their emotional exhaustion.

5.2.7. Burnout and Class/Group Size

Class size management: Schools should aim to maintain smaller class sizes to reduce the burden associated with handling large classes. Class size reduction, where feasible, can significantly lower teacher burnout, particularly emotional exhaustion. However, if large class sizes are necessary, providing additional support, such as teaching assistants or technology aids, can help teachers manage the increased work demands and reduce burnout.

Support for large classes: For teachers with larger classes, implementing strategies like team teaching, additional planning time, and professional development on effective classroom management can help reduce burnout and enhance personal accomplishment. Investing in classroom infrastructure to create a more conducive learning environment can alleviate some of the stress associated with managing larger classes.

Workload schedule management for larger classes: Ensuring that teachers with larger classes are not overloaded with extra responsibilities can help prevent emotional exhaustion and depersonalization. School managers should ensure that teachers have the time and resources to effectively manage their classes to help reduce their stress and burnout levels while enhancing their sense of personal accomplishment.

5.3. Limitations

Regardless of the fact that this study was conducted with the greatest caution, thus, yielded valuable insights, the following limitations were identified: First, a cross-sectional design was adopted in this investigation even though a longitudinal design might have offered deeper insights. Second, the generalisability of the study's findings is a significant limitation as Ghanaian samples are in no way comparable to those found elsewhere in Africa. We recommend, therefore, that a replication of this study's utilizing statistical technique employed in this study could provide unbiased and comprehensive information on how socio-demographic and job characteristics influence burnout incidence.

Conflicts of Interest

The author declares no conflicts of interest.

References

[1] Lee, S.S. and Wolf, S. (2019) Measuring and Predicting Burnout among Early Childhood Educators in Ghana. *Teaching and Teacher Education*, **78**, 49-61. https://doi.org/10.1016/j.tate.2018.10.021

[2] Aboagye, M.O., Antwi, C.O., Asare, K., Seth, N., Gyasi, F. and Kwasi, F. (2023) Job

Stress and Teacher Burnout in Preschools—Preliminary Assessment of the Buffer Effect of Job Resources in the Stressor-Strain Model in a Lower-Middle-Income Country. *Early Years*, **44**, 781-800. https://doi.org/10.1080/09575146.2023.2237207

[3] Boweni, G.P., van der Westhuizen, P. and Meyer, L. (2020) Role Conflict Experienced by Primary School Educators in North West, South Africa. *Africa Education Review*, **17**, 1-18. https://doi.org/10.1080/18146627.2020.1747359

[4] Li, S., Li, Y., Lv, H., Jiang, R., Zhao, P., Zheng, X., *et al.* (2020) The Prevalence and Correlates of Burnout among Chinese Preschool Teachers. *BMC Public Health*, **20**, Article No. 160. https://doi.org/10.1186/s12889-020-8287-7

[5] Van Droogenbroeck, F., Spruyt, B. and Vanroelen, C. (2014) Burnout among Senior Teachers: Investigating the Role of Workload and Interpersonal Relationships at Work. *Teaching and Teacher Education*, **43**, 99-109. https://doi.org/10.1016/j.tate.2014.07.005

[6] Whitaker, R.C., Dearth-Wesley, T. and Gooze, R.A. (2015) Workplace Stress and the Quality of Teacher-Children Relationships in Head Start. *Early Childhood Research Quarterly*, **30**, 57-69. https://doi.org/10.1016/j.ecresq.2014.08.008

[7] Maslach, C. and Jackson, S.E. (1981) The Measurement of Experienced Burnout. *Journal of Organizational Behavior*, **2**, 99-113. https://doi.org/10.1002/job.4030020205

[8] Salvagioni, D.A.J., Mesas, A.E., Melanda, F.N., González, A.D. and de Andrade, S.M. (2022) Burnout and Long-Term Sickness Absence from the Teaching Function: A Cohort Study. *Safety and Health at Work*, **13**, 201-206. https://doi.org/10.1016/j.shaw.2022.01.006

[9] Ntim, S.Y., Antwi, C.O., Aboagye, M.O., Mensah, E.T., Teye, E.T. and Li, X. (2024) Emotional Labor and Absenteeism among Early Childhood Educators: The Mediating Roles of Negative Affect and Psychological Meaningfulness. *Heliyon*, **10**, e40039. https://doi.org/10.1016/j.heliyon.2024.e40039

[10] Peele, M. and Wolf, S. (2021) Depressive and Anxiety Symptoms in Early Childhood Education Teachers: Relations to Professional Well-Being and Absenteeism. *Early Childhood Research Quarterly*, **55**, 275-283. https://doi.org/10.1016/j.ecresq.2020.11.008

[11] Ntim, S.Y., Qin, J., Antwi, C.O., Aboagye, M.O., Chen, S. and Takyi Mensah, E. (2023) "I-Just-Wanna-Get-by" Hurts Teachers and Their Work: Linking Preschool Teacher Identity to Work Withdrawals in an Emerging Economy. *Current Psychology*, **43**, 2783-2798. https://doi.org/10.1007/s12144-023-04494-4

[12] Agyapong, B., da Luz Dias, R., Wei, Y. and Agyapong, V.I.O. (2024) Burnout among Elementary and High School Teachers in Three Canadian Provinces: Prevalence and Predictors. *Frontiers in Public Health*, **12**, Article 1396461. https://doi.org/10.3389/fpubh.2024.1396461

[13] Ozoemena, E.L., Agbaje, O.S., Ogundu, L., Ononuju, A.H., Umoke, P.C.I., Iweama, C.N., *et al.* (2021) Psychological Distress, Burnout, and Coping Strategies among Nigerian Primary School Teachers: A School-Based Cross-Sectional Study. *BMC Public Health*, **21**, Article No. 2327. https://doi.org/10.1186/s12889-021-12397-x

[14] Cañadas-De la Fuente, G.A., Ortega, E., Ramirez-Baena, L., De la Fuente-Solana, E.I., Vargas, C. and Gómez-Urquiza, J.L. (2018) Gender, Marital Status, and Children as Risk Factors for Burnout in Nurses: A Meta-Analytic Study. *International Journal of Environmental Research and Public Health*, **15**, Article 2102. https://doi.org/10.3390/ijerph15102102

[15] Pietarinen, J., Pyhältö, K., Haverinen, K., Leskinen, E. and Soini, T. (2021) Is Individual- and School-Level Teacher Burnout Reduced by Proactive Strategies? *International Journal of School & Educational Psychology*, **9**, 340-355. https://doi.org/10.1080/21683603.2021.1942344

[16] McGeary, C.A. and McGeary, D.D. (2012) Occupational Burnout. In: Gatchel, R.J. and Schultz, I.Z., Eds., *Handbook of Occupational Health and Wellness*, Springer, 3-563.

[17] Sarros, A.M. and Sarros, J.C. (1990) How Burned Out Are Our Teachers? A Cross-Cultural Study. *Australian Journal of Education*, **34**, 145-152. https://doi.org/10.1177/000494419003400205

[18] Cunningham, W.G. (1983) Teacher Burnout? Solutions for the 1980s: A Review of the Literature. *The Urban Review*, **15**, 37-51. https://doi.org/10.1007/bf01112341

[19] Freudenberger, H.J. (1974) Staff Burn-OUT. *Journal of Social Issues*, **30**, 159-165. https://doi.org/10.1111/j.1540-4560.1974.tb00706.x

[20] Sonnentag, S. (2017) A Task-Level Perspective on Work Engagement: A New Approach That Helps to Differentiate the Concepts of Engagement and Burnout. *Burnout Research*, **5**, 12-20. https://doi.org/10.1016/j.burn.2017.04.001

[21] Dworkin, A.G. (2009) Teacher Burnout and Teacher Resilience: Assessing the Impacts of the School Accountability Movement. In: Saha, L.J. and Dworkin, A.G., Eds., *International Handbook of Research on Teachers and Teaching*, Springer, 491-502. https://doi.org/10.1007/978-0-387-73317-3_32

[22] Piechurska-kuciel, E. (2011) Foreign Language Teacher Burnout: A Research Proposal. In: Pawlak, M., Ed., *Extending the Boundaries of Research on Second Language Learning and Teaching*, Springer, 211-223.

[23] Schaufeli, W.B. (2017) Applying the Job Demands-Resources Model. *Organizational Dynamics*, **46**, 120-132. https://doi.org/10.1016/j.orgdyn.2017.04.008

[24] Hernández, T.J., Sánchez, G., Hernández, J.F. and Avendaño, V. (2012) Prevalence of Burnout Syndrome in Employees of Institutions of the Health Sector. In: Gil-Lafuente, A., Gil-Lafuente, J. and Merigó-Lindahl, J., Eds., *Soft Computing in Management and Business Economics*, Springer, 207-225. https://doi.org/10.1007/978-3-642-30457-6_14

[25] Bakker, A.B., Demerouti, E. and Sanz-Vergel, A.I. (2014) Burnout and Work Engagement: The JD-R Approach. *Annual Review of Organizational Psychology and Organizational Behavior*, **1**, 389-411. https://doi.org/10.1146/annurev-orgpsych-031413-091235

[26] Hussain, H. (2010) A Study of Teacher Stress Exploring Practitioner Research and Teacher Collaboration as a Way Forward. https://eprints.bournemouth.ac.uk/14994/1/Final_Amended_Copy_March_2010.pdf

[27] Greenberg, S.F. (1984) Stress and the Teaching Profession. Brookes.

[28] Travers, C. (2017) Current Knowledge on the Nature, Prevalence, Sources and Potential Impact of Teacher Stress. In: McIntyre, T., McIntyre, S. and Francis, D., Eds., *Educator Stress*, Springer, 23-54.

[29] Aboagye, M.O., Boateng, P., Asare, K., Sekyere, F.O., Antwi, C.O. and Qin, J. (2020) Managing Conflictual Teacher-Child Relationship in Pre-Schools: A Preliminary Test of the Job Resources Buffering-Effect Hypothesis in an Emerging Economy. *Children and Youth Services Review*, **118**, Article ID: 105468. https://doi.org/10.1016/j.childyouth.2020.105468

[30] Feldman, G., Hayes, A., Kumar, S., Greeson, J. and Laurenceau, J. (2006) Mindfulness and Emotion Regulation: The Development and Initial Validation of the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R). *Journal of Psychopathology and Behavioral Assessment*, **29**, 177-190. https://doi.org/10.1007/s10862-006-9035-8

[31] Aboagye, M.O., Qin, J., Qayyum, A., Antwi, C.O., Jababu, Y. and Affum-Osei, E. (2018) Teacher Burnout in Pre-Schools: A Cross-Cultural Factorial Validity, Measurement Invariance and Latent Mean Comparison of the Maslach Burnout Inventory, Educators Survey (MBI-ES). *Children and Youth Services Review*, **94**, 186-197. https://doi.org/10.1016/j.childyouth.2018.09.041

[32] Verdonk, P., Hooftman, W.E., van Veldhoven, M.J.P.M., Boelens, L.R.M. and Koppes, L.L.J. (2009) Work-Related Fatigue: The Specific Case of Highly Educated Women in the Netherlands. *International Archives of Occupational and Environmental Health*, **83**, 309-321. https://doi.org/10.1007/s00420-009-0481-y

[33] Marchand, A., Blanc, M. and Beauregard, N. (2018) Do Age and Gender Contribute to Workers' Burnout Symptoms? *Occupational Medicine*, **68**, 405-411. https://doi.org/10.1093/occmed/kqy088

[34] Shaheen, F. and Mahmood, N. (2018) Demographic Variables as Determinants of Emotional Burnout among Public School Teachers. *The Journal of Behavioral Science*, **28**, 127-146.

[35] Marchand, A., Durand, P., Haines, V. and Harvey, S. (2014) The Multilevel Determinants of Workers' Mental Health: Results from the SALVEO Study. *Social Psychiatry and Psychiatric Epidemiology*, **50**, 445-459. https://doi.org/10.1007/s00127-014-0932-y

[36] Muñoz Muñoz, C.F. (2021) Sociodemographic Characteristics and Burnout Syndrome in Teachers of the Eje Cafetero, Colombia. In: Guzmán Torres, C. and Barba, J.V., Eds., *Psychosocial Risks in Education and Quality Educational Processes*, European Proceeding of Social and Behavioral Sciences, 1-11. https://doi.org/10.15405/epsbs.2021.06.1

[37] Saloviita, T. and Pakarinen, E. (2021) Teacher Burnout Explained: Teacher-, Student-, and Organisation-Level Variables. *Teaching and Teacher Education*, **97**, Article ID: 103221. https://doi.org/10.1016/j.tate.2020.103221

[38] Aboagye, M.O., Boateng, P., Asare, K., Sekyere, F.O., Antwi, C.O. and Qin, J. (2020) Managing Conflictual Teacher-Child Relationship in Pre-Schools: A Preliminary Test of the Job Resources Buffering-Effect Hypothesis in an Emerging Economy. *Children and Youth Services Review*, **118**, Article ID: 105468. https://doi.org/10.1016/j.childyouth.2020.105468

[39] Mamo, D. (2022) Burnout among Public Primary School Teachers in Dire Dawa Administrative Region, Ethiopia. *Frontiers in Education*, **7**, Article 994313. https://doi.org/10.3389/feduc.2022.994313

[40] Gama, G., Barbosa, F. and Vieira, M. (2014) Personal Determinants of Nurses' Burnout in End of Life Care. *European Journal of Oncology Nursing*, **18**, 527-533. https://doi.org/10.1016/j.ejon.2014.04.005

[41] Cañadas-De la Fuente, G.A., Vargas, C., San Luis, C., García, I., Cañadas, G.R. and De la Fuente, E.I. (2015) Risk Factors and Prevalence of Burnout Syndrome in the Nursing Profession. *International Journal of Nursing Studies*, **52**, 240-249. https://doi.org/10.1016/j.ijnurstu.2014.07.001

[42] Meng, X. and Yang, D. (2023) Marital Status Differences in the Association of Work Motivation with Burnout: A Network Perspective. *Current Psychology*, **43**, 531-540. https://doi.org/10.1007/s12144-022-04124-5

[43] Coffey, M. and Coleman, M. (2001) The Relationship between Support and Stress in Forensic Community Mental Health Nursing. *Journal of Advanced Nursing*, **34**, 397-407. https://doi.org/10.1046/j.1365-2648.2001.01770.x

[44] Hellebaut, S., Haerens, L., Vanderlinde, R. and & Katrien De Cocker, (2023) Burnout, Motivation, and (De-)motivating Teaching Style in Different Phases of a Teaching Career. *Teaching and Teacher Education*, **129**, Article ID: 104168. https://doi.org/10.1016/j.tate.2023.104168

[45] Jamaludin, I.I. and You, H.W. (2019) Burnout in Relation to Gender, Teaching Experience, and Educational Level among Educators. *Education Research International*, **2019**, Article ID: 7349135. https://doi.org/10.1155/2019/7349135

[46] Ferreira, A.I. and Martinez, L.F. (2012) Presenteeism and Burnout among Teachers in Public and Private Portuguese Elementary Schools. *The International Journal of Human Resource Management*, **23**, 4380-4390. https://doi.org/10.1080/09585192.2012.667435

[47] öztürk, M., Bulut, M.B. and Yildiz, M. (2021) Predictors of Teacher Burnout in Middle Education: School Culture and Self-efficacy. *Studia Psychologica*, **63**, 5-23. https://doi.org/10.31577/sp.2021.01.811

[48] Copeland-Joseph, C. (2022) A Study of Teacher Burnout in Private Seventh-Day Adventist and Public Schools in Trinidad/Tobago and Michigan, USA. Master's Thesis, Andrews University.

[49] Pietarinen, J., Pyhältö, K., Soini, T. and Salmela-Aro, K. (2013) Reducing Teacher Burnout: A Socio-Contextual Approach. *Teaching and Teacher Education*, **35**, 62-72. https://doi.org/10.1016/j.tate.2013.05.003

[50] Leiter, M.P. and Maslach, C. (2016) Latent Burnout Profiles: A New Approach to Understanding the Burnout Experience. *Burnout Research*, **3**, 89-100. https://doi.org/10.1016/j.burn.2016.09.001

[51] Brunsting, N.C., Sreckovic, M.A. and Lane, K.L. (2014) Special Education Teacher Burnout: A Synthesis of Research from 1979 to 2013. *Education and Treatment of Children*, **37**, 681-711. https://doi.org/10.1353/etc.2014.0032

[52] Maslach, R.L., Jackson, C. and Schwab, S.E. (1996) Maslach Burnout Inventory: Educators Survey (MBI-ES). 27-32. https://www.mindgarden.com/316-mbi-educators-survey

[53] Boles, J.S., Dean, D.H., Ricks, J.M., Short, J.C. and Wang, G. (2000) The Dimensionality of the Maslach Burnout Inventory across Small Business Owners and Educators. *Journal of Vocational Behavior*, **56**, 12-34. https://doi.org/10.1006/jvbe.1999.1689

[54] Allison, P.D. (2003) Missing Data Techniques for Structural Equation Modeling. *Journal of Abnormal Psychology*, **112**, 545-557. https://doi.org/10.1037/0021-843x.112.4.545

[55] Weston, R. and Gore, P.A. (2006) A Brief Guide to Structural Equation Modeling. *The Counseling Psychologist*, **34**, 719-751. https://doi.org/10.1177/0011000006286345

[56] Curran, P.J., West, S.G. and Finch, J.F. (1996) The Robustness of Test Statistics to Nonnormality and Specification Error in Confirmatory Factor Analysis. *Psychological Methods*, **1**, 16-29. https://doi.org/10.1037/1082-989x.1.1.16

[57] Chen, F.F. (2007) Sensitivity of Goodness of Fit Indexes to Lack of Measurement Invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, **14**, 464-504. https://doi.org/10.1080/10705510701301834

[58] Meredith, W. and Teresi, J.A. (2006) An Essay on Measurement and Factorial

Invariance. *Medical Care*, **44**, S69-S77. https://doi.org/10.1097/01.mlr.0000245438.73837.89

[59] Cheung, G.W. and Rensvold, R.B. (2002) Evaluating Goodness-of-Fit Indexes for Testing Measurement Invariance. *Structural Equation Modeling*: *A Multidisciplinary Journal*, **9**, 233-255. https://doi.org/10.1207/s15328007sem0902_5

[60] Sass, D.A. (2011) Testing Measurement Invariance and Comparing Latent Factor Means within a Confirmatory Factor Analysis Framework. *Journal of Psychoeducational Assessment*, **29**, 347-363. https://doi.org/10.1177/0734282911406661

[61] Hancock, G.R. (1997) Structural Equation Modeling Methods of Hypothesis Testing of Latent Variable Means. *Measurement and Evaluation in Counseling and Development*, **30**, 91-105. https://doi.org/10.1080/07481756.1997.12068926

[62] Dimitrov, D.M. (2006) Comparing Groups on Latent Variables: A Structural Equation Modeling Approach. *WORK*: *A Journal of Prevention*, *Assessment & Rehabilitation*, **26**, 429-436. https://doi.org/10.3233/wor-2006-00576

[63] Meredith, W. (1993) Measurement Invariance, Factor Analysis and Factorial Invariance. *Psychometrika*, **58**, 525-543. https://doi.org/10.1007/bf02294825

[64] Woodside, J.R., Miller, M.N., Floyd, M.R., McGowen, K.R. and Pfortmiller, D.T. (2008) Observations on Burnout in Family Medicine and Psychiatry Residents. *Academic Psychiatry*, **32**, 13-19. https://doi.org/10.1176/appi.ap.32.1.13

[65] Lau, P.S.Y., Yuen, M.T. and Chan, R.M.C. (2005) Do Demographic Characteristics Make a Difference to Burnout among Hong Kong Secondary School Teachers? *Social Indicators Research*, **71**, 491-516. https://doi.org/10.1007/s11205-004-8033-z

[66] Yildirim, İ. (2008) Relationships between Burnout, Sources of Social Support and Sociodemographic Variables. *Social Behavior and Personality*: *An International Journal*, **36**, 603-616. https://doi.org/10.2224/sbp.2008.36.5.603

[67] Johns, G. (2009) Presenteeism in the Workplace: A Review and Research Agenda. *Journal of Organizational Behavior*, **31**, 519-542. https://doi.org/10.1002/job.630

[68] Fernet, C., Guay, F., Senécal, C. and Austin, S. (2012) Predicting Intraindividual Changes in Teacher Burnout: The Role of Perceived School Environment and Motivational Factors. *Teaching and Teacher Education*, **28**, 514-525. https://doi.org/10.1016/j.tate.2011.11.013