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Presenteeism and Its Associated Factors Among Teachers

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Abstract

Background: *Teaching is a mentally and physically demanding profession, often performed under challenging and stressful conditions. In Egypt, the lack of school resources, low teacher salaries, poor organizational climate, and high work pressures represent just a few challenges faced by the educational system. These difficulties can adversely affect teachers' health, leading to negative outcomes such as presenteeism. Despite this, no studies have assessed presenteeism among Egyptian teachers. Therefore, this study aimed to estimate the prevalence of presenteeism and identify associated factors among public school teachers.* **Methods:** *A cross-sectional study was conducted involving 373 teachers using an interview-administered questionnaire to gather information on their sociodemographic, occupational, and medical characteristics, along with their Stanford Presenteeism Scale scores and responses to the Job Content Questionnaire.* **Results:** *The prevalence of presenteeism among the teachers studied over the last 12 months was 70.8%. Of these, 74.6% had lower presenteeism scores, reflecting diminished performance in work activities. Key independent predictors of presenteeism included being a female teacher, having additional jobs, experiencing musculoskeletal and/or respiratory health issues, facing high job demands, and possessing low job control. The Adjusted Odds Ratios (AOR) for these factors were 4.1, 5.1, 3.1, 11.7, and 11.7, respectively.* **Conclusion:** *Presenteeism is highly prevalent among public school teachers in Egypt. Therefore, teachers with significant predictors of presenteeism should be given increased attention.*

1. Introduction

An individual's health is considered a valuable possession. Without it, basic life activities such as work can be limited or impossible [1]. Absenteeism among workers has been used as an indicator to assess their health. Evaluations are based on the assumption that workers in the workplace are fully healthy and productive. These results do not precisely reflect overall health since workers are often present at work when they are not feeling well and not functioning to their full capacity, which reduces productivity below normal quality, a phenomenon known as presenteeism [2-4].

Presenteeism is a global phenomenon that has attracted research interest in recent years due to its increasing prevalence and impact on health, public health, and labor productivity [3, 5]. The causes of presenteeism are complex and may be work-related or organizational, including job insecurity, fear of losing income, strict absence policies, downsizing, understaffing, work overload, overtime, elevated job demands, employee-employer relations, job dissatisfaction, and experienced stress [1, 5-8]. Personal

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factors such as age, sex, occupation, education, and state of health can also contribute to presenteeism [2]. Presenteeism-related exposures differ by sector and are common in occupations that require extensive social and interpersonal communication skills, including workers in education, care, and welfare sectors (e.g., teachers, nursing and midwifery professionals, and nursing home aides) [6, 9].

Teaching is carried out under unfavorable and stressful circumstances, in which teachers mobilize their physical, cognitive, and affective capacities, as well as their psychophysiological functions, to achieve teaching production objectives, leading to various physical and mental health problems [10]. A study conducted by Aronsson et al. [6] found the highest prevalence of presenteeism in the education sector (46.0%), followed by health care and welfare (44.0%). According to Olejniczak et al., [11] the teaching profession exhibits the highest level of presenteeism compared to nurses and private sector office workers.

The quality of work is usually affected by presenteeism since it can result in errors or omissions, leading to lower productivity and higher costs. The costs associated with lost productivity due to presenteeism exceed the sum of those associated with absenteeism and medical care [12]. The implications of presenteeism are sharper in the school context since the on-site educational model relies on teacher-student interaction. Disruptions in that interaction due to the teachers' sickness can result in lower performance, motivation, and connections between teachers and students [13].

In Egypt, the number of pre-university education teachers was estimated at 1,025,842 in 2019/2020 [14]. A lack of school resources, low teacher salaries, poor organizational climate, and work pressure are just a few challenges facing the Egyptian educational system [15]. The prevalence of presenteeism has been documented in earlier studies conducted on intensive care nurses [16] and train drivers [17]. However, to the authors' knowledge, there is a lack of data on presenteeism among school teachers. Therefore, to address this research gap, the current study aimed to estimate the prevalence of presenteeism and identify its associated factors among public school teachers in Egypt.

2. Methods

2.1. Study Design and Setting

A cross-sectional study was conducted in public schools in Aga City, Dakahlia governorate, about 150 km northeast of Cairo, Egypt, from February to March 2024.

2.2. Sample Size

The sample size was calculated using Open-Epi software (https://www.openepi.com/SampleSize/SSPropor.htm). Based on a prevalence rate of 65.2% among public school teachers [3], with a precision level of 5.0% and a confidence level of 95.0%, the minimum required sample size was 349 participants.

2.3. Study Population and Sampling Method

The study targeted teachers employed in public schools. Eligible criteria included full-time school teachers with at least one year of teaching experience, currently on duty, and teaching any school subject. Using stratified random sampling, a frame of all public schools was obtained from the Aga Educational Administration. Aga City includes 14 public schools. Egypt's educational system classified schools into primary, preparatory, general, and technical secondary schools. One school was selected randomly from each section. The total number of teachers employed at the Dakahlia Directorate of Education is approximately 55,211, of which 35,263 are female and 19,948 are male [14]. In the Aga district, which includes both urban and rural areas, there are around 3,068 public school teachers. Approximately one-third of these teachers, or 1,020, work in public schools in Aga City. All eligible teachers working in the enrolled schools were invited to participate in the data collection process, with 406 teachers. Of these, 373 participants completed the questionnaire, resulting in a response rate of 91.9%.

2.4. Study Tools

An interviewer-administered questionnaire involved the following sections.

- Sociodemographic, occupational, and medical data, including sex, age, residence, marital status, teaching qualifications, smoking habits, years spent in the teaching profession, school level (primary, preparatory, general secondary, or technical), participation in additional jobs besides the current ones, and self-reported health issues within the last 12 months.
- The Arabic-validated version of the Stanford Presenteeism Scale (SPS-6) was utilized to gather data on presenteeism. It had been employed in a prior study conducted in Egypt to evaluate presenteeism among nursing staff in intensive care units, where its reliability was determined to be 0.80 [16]. The scale comprises two parts. In the first part, presenteeism prevalence is assessed by posing the following question: "In the past 12 months, have you ever come to work despite feeling unwell or having a health issue (physical/mental) that hindered you from performing your tasks normally?" When presenteeism was identified in the first part, the second part was completed. It included two distinct dimensions: completing work (items 2, 5, and 6), which refers to the amount of work carried out despite presenteeism, and avoiding distraction (items 1, 3, and 4), which determines the level of concentration needed to perform effectively while unwell. Both dimensions were evaluated using a five-point Likert-type response scale ranging from 'strongly disagree' to 'strongly agree', with 'uncertain' serving as the neutral, third option. In the completed work dimension, a score of 5, "totally disagree", indicates the least favorable condition, whereas, in the avoided distraction domain, it corresponds to a score of 1, "totally agree". The total score on SPS-6, ranging from 6 to 30, is calculated by summing all responses across the two dimensions. Lower scores (from 6 to 18) signify diminished performance in work activities due to presenteeism, while higher scores (from 19 to 30) indicate better work performance despite the presence of presenteeism [18].
- The job content questionnaire utilized a demand control model and was rated on a 4-point Likert scale: strongly disagree (1), disagree (2), agree (3), and strongly agree (4). It included psychosocial job demands (5 items: working quickly, working hard, excessive workload, insufficient time, and conflicting demands) and job control (9 items) encompassing decision authority (3 items: ability to make decisions, limited decision freedom, and significant input) as well as skill discretion (6 items: learning new skills, high skill level, repetitive tasks, requiring creativity, various tasks, and developing personal abilities). Both the psychosocial job demands and job control scores were dichotomized using median cut-off points to categorize them as high (≥ median score) and low (< median score) values for each scale [19]. A validated Arabic version of the Job Content Questionnaire was employed, adapted from a study conducted in the United Arab Emirates, which showed a reliability of 0.86 for psychological job demand and 0.70 for job control [20].

2.5. Statistical Analyses

Data were coded, tabulated, and analyzed using SPSS version 22. Categorical data were expressed as numbers and percentages, whereas continuous data were presented as mean ± standard deviation. The Chi-square test was used to test significance in bivariate analysis, and crude odds ratios (COR) and their 95% Confidence Interval (CI) were calculated. The Fisher Exact Test was used for categorical variables when the expected cell count was less than 5 in four cell tables. A multivariate logistic regression model using the enter method was applied to create a model that included only the most relevant and significant predictors of presenteeism. The adjusted odds ratio (AOR) and their 95% CI were calculated. Independent t-test and one-way ANOVA were used to compare the means of the Stanford Presenteeism Scale (SPS-6) score. Post hoc Tukey test was used to detect pair-wise comparison for continuous variables following a significant ANOVA test. Multiple

linear regression analysis was performed to identify independent predictors of SPS-6 among teachers with presenteeism. p-value ≤ 0.05 was considered to be statistically significant.

3. RESULTS

Table 1 illustrates that the mean age of the studied teachers was 48.6 ± 6.7 years. More than half of the participants were female and rural residents. The majority of teachers were married, educated up to the university level, and non-smokers. The mean teaching experience of the teachers studied was 22.8 ± 7.1 years, with (27.9%) of them working in primary school. Nearly (40.0%) of the studied teachers gave private tuition after the end of the school day, while only (12.6%) had a second evening job apart from teaching, such as working in retail shops, bookstores, and printing presses. More than half of the participants reported experiencing one or more health problems in the last 12 months, with musculoskeletal system problems being the most prevalent, followed by respiratory system problems and voice problems.

Table 1. Sociodemographic, occupational, and medical profiles of the studied teachers (No. = 373).

Variable		No. (%)
Sex	Female	198 (53.1)
	Male	175 (46.9)
Age (years), mean ± SD		48.6 ± 6.7
Residence	Rural	196 (52.5)
	Urban	177 (47.5)
Marital status	Single	6 (1.6)
	Married	351 (94.1)
	Widow	13 (3.5)
	Divorced	3 (0.8)
Qualification	Secondary technical school	3 (0.8)
	Intermediate institute	11 (2.9)
	University	359 (96.2)
Current smoking	Smoker	55 (14.7)
	Non- smoker	318 (85.3)
Teaching experience (years), mean ± SD		22.8 ± 7.1
School level	Primary	104 (27.9)
	Preparatory	92 (24.7)
	Secondary	81 (21.7)
	Technical	96 (25.7)
Additional jobs	Private tuition after the end of the school day	148 (39.7)
	Others[a]	47 (12.6)
One or more health problem	Yes	201 (53.9)
	No	172 (46.1)
Type of health problems[b]	Musculoskeletal	107 (28.7)
	Respiratory	28 (7.5)
	Voice	18 (4.8)
	Gastrointestinal	15 (4.0)
	Hypertension	15 (4.0)
	Headache/ migraine	14 (3.8)
	Genitourinary	7 (1.9)
	Diabetes mellitus	4 (1.1)
	Depression	3 (0.8)
	Dental	3 (0.8)
	Auditory	2 (0.5)
	Hypothyroidism	1 (0.3)

[a]*others including retail shops, bookstores, and printing presses;* [b]*categories are not mutually exclusive.*

Table 2 shows that the prevalence of presenteeism among teachers in the last 12 months was (70.8%). Among them (74.6%) had lower presenteeism scores, while only (25.4%) had higher presenteeism scores. The mean scores for SPS-6, completing work, and avoiding distraction were 14.4 ± 5.7, 7.1 ± 2.9, and 7.3 ± 3.0, respectively.

In Table 3, significant risk factors associated with presenteeism among the studied teachers in the bivariate analysis include being under the age of 49, being female, having less than 23 years of teaching experience, working as basic education teachers, having additional jobs, giving private tuition, experiencing health problems, facing high job demands,

Table 2. Presenteeism among teachers (No. = 373) in the last 12 months.

Variable		No. (%)
Presenteeism		264 (70.8)
SPS-6 score	Lower scores[a] (6-18)	197 (74.6)
	Higher scores[b] (>18)	67 (25.4)
	mean ± SD	14.4 ± 5.7
SPS-6 dimensions	Completing work, mean ± SD	7.1 ± 2.9
	Avoiding distraction, mean ± SD	7.3 ± 3.0

[a]Lower scores denote reduced work performance due to presenteeism. [b]Higher scores denote better work performance despite presenteeism.

and having low job control. The multivariate logistic regression analysis demonstrated that the significant independent predictors of presenteeism were female teachers, having additional jobs, experiencing musculoskeletal and/or respiratory health problems, high job demands, and low job control.

Table 4 reveals that the mean SPS-6 score was significantly lower among teachers who were younger than 49, had fewer than 23 years of teaching experience, held additional jobs, provided private tutoring, experienced musculoskeletal and/or respiratory health problems, faced higher job demands, and had lower job control. A lower SPS-6 score reflects a reduced ability to concentrate and perform work effectively.

Table 5 presents the results of the multiple linear regression model analyzing independent predictors of the SPS-6 among teachers experiencing presenteeism. Higher job demand ($\beta = -0.44$, $p < 0.001$), lower job control ($\beta = 0.28$, $p < 0.001$), and the presence of musculoskeletal and/or respiratory health problems ($\beta = -0.16$, $p = 0.028$) were independently associated with lower SPS-6 score.

4. Discussion

Presenteeism is a critical issue in occupational health, adversely affecting workers' health and organizational productivity. It is more prevalent in occupations that require high attendance, and teachers are no exception [21, 22]. In the present study, the prevalence of presenteeism among teachers was 70.8%. This rate is higher compared to that reported among teachers in Germany (57.1%)[23], Brazil (42.8%)[24], and León, Nicaragua (65.2%)[3]. The increased prevalence in our study may be attributed to several factors. First is the sense of duty and commitment to students; thus, teachers strive to minimize canceled lessons to enhance quality and improve the educational system's ranking. Egypt's education system is ranked very low, at 133 out of 137 in terms of the quality of primary education and 130 in the overall quality [25]. Second, there are strong work ethics, as teachers' absences place excessive burdens on their colleagues with additional workloads. Third, public employees in Egypt are allowed only a limited number of paid sick days per year, and exceeding this limit results in pay reductions. Lastly, there is a staffing shortage since many teachers have reached retirement age without being replaced. In contrast, this presenteeism rate was lower than that reported by de Perio et al., who found that (77.0%) of American school employees with influenza-like illnesses reported working while ill [26].

One risk factor for presenteeism among teachers in the current study was being under 49 years old, consistent with previous studies [27, 28], highlighting that presenteeism is more prevalent among younger to middle-aged workers. This finding likely resulted from stricter attendance requirements for junior staff. Conversely, our result opposed the findings of Dudenhöffer et al. [23] and Rojas-Roque & López-Bonilla [3], who did not identify a significant association between age and presenteeism among school teachers.

Consistent with previous studies [28, 29], female teachers were significantly more likely to experience presenteeism than their male counterparts, although other studies found no correlation between gender and presenteeism [3, 23, 26]. This gender difference may be attributed to women's multiple roles compared to men, who do not have to manage the overwhelming household responsibilities associated with being mothers, wives, sisters, and daughters-in-law [15]. Furthermore, many women are compelled to work at the expense of their health due to financial stress, as they cannot afford to stay home and lose their salary. Another possible explanation could be the

Table 3. Factors associated with presenteeism and its independent predictors among studied teachers.

Risk factor / Category		Total	Presenteeism	Bivariate analysis		Multivariate analysis	
		No.	No. (%)[a]				
Overall		*373*	*264 (70.8)*	*p-value*	*COR (95%CI)*	*p-value*	*AOR (95%CI)*[e]
Sociodemographic							
Age (years)	< 49	174	148 (85.1)	< **0.001**	4.1 (2.5- 6.7)	0.353	0.5 (0.1- 2.1)
	≥ 49	199	116 (58.3)		*ref*		*ref*
Sex	Female	198	157 (79.3)	< **0.001**	2.4 (1.5-3.9)	**0.002**	4.1 (1.8-10.2)
	Male	175	107 (61.1)		*ref*		*ref*
Residence	Rural	196	136 (69.4)	0.535	0.9 (0.6-1.3)	0.101	0.6 (0.3-1.1)
	Urban	177	128 (72.3)		*ref*		*ref*
Marital status	Married	351	248 (70.7)	0.836	0.9 (0.3-2.4)	0.384	0.5 (0.1-2.2)
	Unmarried	22	16 (27.7)		*ref*		*ref*
Qualification	Less than university	14	9 (85.7)	0.368	2.5 (0.6- 11.6)	0.117	4.5 (0.7-29.7)
	University	359	252 (70.2)		*ref*		*ref*
Current smoking	Smoker	55	36 (65.5)	0.347	0.7 (0.4- 1.4)	0.783	1.1 (0.4-3.1)
	Non-smoker	318	228 (71.7)		*ref*		*ref*
Occupational							
Teaching experience (years)	< 23	173	149 (86.1)	< **0.001**	4.6 (2.7-7.7)	0.186	2.5 (0.6-9.7)
	≥ 23	200	115 (57.5)		*ref*		*ref*
School level[b]	Basic	196	148 (75.5)	**0.034**	1.6 (1.1- 2.5)	0.222	1.6 (0.8-3.2)
	Secondary	177	116 (65.5)		*ref*		*ref*
Additional jobs[c]	Yes	196	152 (77.6)	**0.002**	2.0 (1.8- 3.1)	**0.008**	5.1 (1.5- 17.3)
	No	177	112 (63.3)		*ref*		*ref*
Private tuition	Yes	148	117 (79.1)	**0.004**	2.0 (1.2- 3.2)	0.248	0.5 (0.2-1.6)
	No	225	147 (65.3)		*ref*		*ref*
Medical							
Health problem	Musculoskeletal and/or respiratory	133	107 (80.5)	< **0.001**	2.7 (1.6- 4.5)	**0.029**	3.1 (1.1- 8.6)
	Others[d]	67	52 (77.6)	**0.013**	2.2 (1.2-4.3)	0.383	0.6 (0.2- 1.8)
	No	173	105 (60.7)		*ref*		*ref*
Psychosocial							
Job demands	High (≥ 13)	205	188 (91.7)	< **0.001**	13.4 (7.5-23.9)	< **0.001**	11.7 (4.6- 29.4)
	Low (< 13)	168	76 (45.2)		*ref*		*ref*
Job control	Low (< 20)	177	168 (94.9)	< **0.001**	14.4 (9.4- 40.2)	< **0.001**	11.7 (5.0 – 27.0)
	High (≥ 20)	196	96 (49.0)		*ref*		*ref*

ref: reference category; COR: crude odds ratio; AOR: adjusted odds ratio; Bold values highlight the significant results

[a] *Percentages were calculated using row totals.*

[b] *Basic comprised primary and preparatory schools, whereas secondary included general and technical schools.*

[c] *Additional jobs besides teaching include private tuition or others like working in retail shops, bookstores, and printing presses.*

[d] *Other health problems include voice, gastrointestinal, hypertension, headache/migraine, genitourinary, diabetes mellitus, depression, dental, auditory, and hypothyroidism.*

[e] *Model χ^2 =212.2, p < 0.001, % correctly predicted = 86.3%, and constant = -6.64.*

Table 4. Distribution of Stanford Presenteeism Scale score according to teachers' sociodemographic, occupational, and medical characters.

Variable / Category		Total No. 264	SPS-6 score mean ± SD	p-value
Sociodemographics				
Age (years)	< 49	148	13.0 ± 5.3	< 0.001
	≥ 49	116	16.1 ± 5.6	
Sex	Female	157	13.9 ± 5.9	0.098
	Male	107	15.1 ± 5.3	
Residence	Rural	136	14.5 ± 5.5	0.688
	Urban	128	14.2 ± 5.9	
Marital status	Married	248	14.3 ± 5.6	0.921
	Unmarried	16	14.5 ± 6.7	
Qualification	Less than university	12	16.8 ± 5.1	0.123
	University	252	14.2 ± 5.7	
Current smoking	Smoker	36	15.2 ± 4.5	0.330
	Non-smoker	228	14.2 ± 5.8	
Occupational				
Teaching experience (years)	< 23	149	12.9 ± 5.3	< 0.001
	≥ 23	115	16.3 ± 5.6	
School level	Basic	148	14.8 ± 5.5	0.149
	Secondary	116	13.8 ± 5.8	
Additional jobs	Yes	152	13.7 ± 5.1	0.039
	No	112	15.2 ± 6.3	
Private tuition	Yes	117	13.0 ± 4.7	< 0.001
	No	147	15.5 ± 6.2	
Medical				
Health problem	Musculoskeletal and /or respiratory[a]	107	13.1 ± 5.6	0.037
	Others*	52	14.0 ± 6.0	
	No[a]	105	15.4 ± 5.2	
Psychosocial				
Job demands	High (≥ 13)	188	12.8 ± 4.8	< 0.001
	Low (< 13)	76	18.1 ± 5.7	
Job Control	High (≥ 20)	168	16.3 ± 5.8	< 0.001
	Low (< 20)	96	13.3 ± 5.3	

asignificant difference between groups within the same column using ANOVA with the post hoc Tukey test.
**Other health problems include voice, gastrointestinal, hypertension, headache/migraine, genitourinary, diabetes mellitus, depression, dental, auditory, and hypothyroidism.*

higher prevalence of women in the teaching profession in Egypt [15, 30, 31], as observed in our study, where more than half of the surveyed teachers were female.

Dual employment, long workdays, and excessive overtime can negatively impact an individual's quality of life, putting their physical and mental health at risk and leading to unfavorable outcomes

Table 5. Multiple linear regression of independent predictors of the Stanford Presenteeism Scale among teachers with presenteeism (n=264).

	Univariate linear regression		Multiple linear regression	
Variable	**β (95% CI)**	**p-value**	**β (95% CI)**	**p-value**
Age (years)	0.31 (0.17 - 0.37)	< 0.001	−0.09 (−0.41 - 0.25)	0.630
Sex	0.10 (−0.22 - 2.58)	0.098	0.07 (−0.71 - 2.34)	0.296
Residence	−0.02 (−1.66 - 1.10)	0.688	−0.08(−2.10 - 0.19)	0.101
Marital status	−0.006 (−3.04 - 2.75)	0.921	−0.04(−3.31 - 1.36)	0.412
Qualification	−0.09 (−5.88 - 0.71)	0.123	−0.06(−4.45 - 1.41)	0.308
Current smoking	−0.06 (−3.0 - 1.01)	0.330	0.03 (−1.38 - 2.27)	0.630
Teaching experience (years)	0.34 (0.19 - 0.38)	< 0.001	0.16 (−0.19 - 0.46)	0.415
School level	−0.09 (−2.40 - 0.37)	0.149	0.03 (−0.98 - 1.56)	0.648
Additional jobs	0.13 (0.08 - 2.84)	0.039	0.003 (−1.88 - 1.95)	0.974
Private tuition	0.22 (1.12 - 3.83)	< 0.001	0.17 (0.26 - 3.72)	0.054
Musculoskeletal/respiratory health problems	−0.15 (−3.01 - −0.31)	0.017	−0.16 (−3.42 - −0.19)	0.028
Other health problems	0.06 (−0.67 - 2.06)	0.363	−0.07 (−2.34 - −0.70)	0.275
Job demands	−0.55 (−1.37 - −0.94)	< 0.001	−0.44 (−1.18 - −0.67)	< 0.001
Job Control	0.35 (0.40 - 0.78)	< 0.001	0.28 (0.29 - 0.65)	< 0.001
Constant			22.44	
Significance			F=12.68, p<0.001	
R^2			0.384	

β*: regression coefficient; CI: Confidence Interval; Model F: Model Analysis of Variance F test; Model* R^2*: Model R square. Age (years), teaching experience (years), job demands, and job control were entered into the regression model as continuous variables. Qualitative variables were included in the model as dummy variables, coded as follows: sex (female = 0, male = 1), residence (rural = 0, urban = 1), marital status (unmarried = 0, married = 1), qualifications (less than university = 0, university = 1), current smoking status (yes = 0, no = 1), school level (basic = 0, secondary = 1), additional jobs (yes = 0, no = 1), private tuition (yes = 0, no = 1), Musculoskeletal and/or respiratory health problems (yes = 0, no = 1), and other health problems (yes = 0, no = 1).*

like presenteeism [32, 33]. Additional jobs besides teaching were a significant independent predictor of presenteeism among school teachers in this study. This was in close agreement with a survey conducted among Japanese workers where presenteeism was associated with overtime hours (OR: 0.91; 95% CI, 0.843–0.989) [34]. Also, in Egypt, Elsherbiny et al. [16] demonstrated a significantly higher prevalence of presenteeism among the studied nurses who had an additional job. Furthermore, nearly (40.0%) of the teachers in the present study gave private tuition after the end of the school day. This figure was higher than previous studies conducted in Egypt by Abo-Hasseba et al. [35] (12.9%) and Fahmy et al. [31] (32.3%). The poor status of teacher salaries in Egypt may explain the observed results since the average annual salary for Egyptian teachers is only 460 $, which is less than half the country's average annual per capita income, forcing them to double their work hours and also work as private tutors to increase their incomes. They do this since they need to be able to live off of their occupation. As they studied for this occupation earlier in life, they cannot switch careers to more successful ones now [15, 30].

The present study indicates that over half of the teachers reported one or more health problems in the last 12 months. The multivariate analysis revealed a significant association between presenteeism and musculoskeletal and/or respiratory health issues, contributing to a higher rate of presenteeism

among teachers in this study. These findings are consistent with earlier research by Coledam et al. [24], showing that teachers with musculoskeletal pain had a higher presenteeism rate ratio (RR (CI 95%) = 2.62 (1.53–4.48)). Another Brazilian study found that teachers self-rating their health poorly had higher presenteeism rates in both bivariate and multivariate analyses (RR = 3.44 and 1.74, respectively) [36]. Our results may reflect Egyptian teachers' challenges in public schools, such as overcrowded classrooms exceeding 40 students and inadequate facilities, adversely affecting their performance. Furthermore, teachers must navigate interactions with children, administrators, and colleagues, which requires them to fulfill multiple roles [15]. These factors contribute to unfavorable work conditions, leading to various physical and mental health issues among teachers. Consequently, employees are often forced to choose between sickness absence, or presenteeism. If presenteeism stems from these choices, more frequent health problems will lead to more instances of presenteeism [37]. In agreement with several studies [34, 38-41], this survey found that high job demands predict presenteeism among teachers. Limited substitutes, heavy workloads, and strict deadlines pressure employees to show up even when sick [38].

In our study, the adjusted regression model revealed that low job control significantly predicts presenteeism among the participants. This result is highlighted in the literature [40, 42]. In contrast to our findings, Janssens et al. [39] reported no association between job control and presenteeism. At the same time, Gerich [43] concluded that high levels of job control correlate with an increased need for presence despite sickness. This discrepancy regarding the connection between job control and presenteeism may stem from the notion that low-control jobs are typically viewed as less healthy, negatively impacting job engagement, suggesting that presenteeism could reflect the worker's health status [39, 44]. Another potential explanation for this association might come from avoidance motives, such as the fear of punishment or job loss due to frequent absenteeism [43]. Conversely, high-control jobs could pose a risk for presenteeism since workers can adapt their work conditions to match their current physical and mental abilities [39].

5. Conclusions and Recommendations

Presenteeism is highly prevalent among public school teachers in Egypt, with more than two-thirds having lower scores, indicating a reduced performance in work activities. Different individual, occupational, medical, and psychosocial factors were significant predictors of presenteeism, including female teachers, having additional jobs, experiencing musculoskeletal and/or respiratory health problems, facing high job demands, and having low job control. Therefore, these findings emphasize the necessity of appropriate interventions by the relevant Egyptian authorities to reduce or prevent presenteeism and mitigate its impacts. These interventions should include periodic medical surveillance and evaluation, especially for teachers with higher rates of presenteeism. Both teachers and administrators should be educated about the factors contributing to presenteeism and the harmful influence of presenteeism on work and health. Finally, A large-scale national study with a representative sample is highly recommended for future research.

5.1 Limitations

While our study's cross-sectional design enabled us to reveal associations between risk factors and presenteeism among school teachers, it cannot establish causality since the temporal relationships between the independent variables and the outcomes remain unknown. This limitation emphasizes the need for further investigation into the factors most significantly contributing to presenteeism.

Although this study was conducted at a single center, its insights provide valuable evidence that can inform strategies for effectively addressing presenteeism. Our data, drawn solely from public school teachers, offer a focused understanding of this demographic while also urging caution in generalizing the findings. Lastly, since our variables were assessed through self-reporting, there is an inherent risk of recall bias. Utilizing internationally validated tools such as the SPS-6 and job content questionnaires enhances the credibility of our findings and underscores the critical issues at hand.

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Informed Consent Statement: Following the assurance of confidentiality and anonymity of data, which are never to be used for any other purpose than scientific research, informed written consent was obtained from teachers who agreed to participate in the study.

Author Contribution Statement: HS contributed to the conception and design of the study, wrote the protocol, obtained ethics committee approval, collected, analyzed, and interpreted the data, and drafted the manuscript. AE also contributed to the study's conception and design, revised the data analysis and interpretation, and critically reviewed the final draft of the manuscript. All authors have reviewed and approved the final version of the manuscript.

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