

## **SELF-REPORTED HEALTH COMPLAINTS OF SCHOOL TEACHERS IN BENI-SUEF, EGYPT**

By

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### **Abstract**

**Introduction:** Teachers may suffer mental and physical health problems due to the adverse effects of a variety of job functions and the heavy occupational stress they are exposed to with the frequent overtime work. Most of the previous studies focused on one type of health problems. **Aim of work:** To assess the prevalence of the self-reported health complaints among school teachers in Beni-Suef, Egypt with special emphasis to ascertain the impact of demographic, lifestyle and work-related characteristics on teachers' health. **Materials and methods:** A cross-sectional study was conducted among teachers from 13 randomly-selected schools in Beni-Suef district. A total of 373 school teachers participated in the study by filling out a self-administered questionnaire. **Results:** About 84.5% of studied school teachers reported at least one or more health complaints. The most frequently reported complaints included errors of refraction (33.5%), tiredness (21.7%), cough (20.9%), low back pain (20.6%), hoarseness of voice (19%), neck pain (16.9%) and joint pain (14.7%). Except for varicose veins, most of health complaints were significantly higher among male teachers than females. Additionally, teachers whose age was more than 40 years, from governmental schools, with Body Mass Index (BMI) >25, from rural areas, physically inactive, current smokers, and spending more than 2 hours/day watching TV were more likely to have at least one health complaint. **Conclusion:** School teachers in Beni-Suef have various self-reported health complaints that are prevalent and aggravated by different risk factors such as male gender, aging, residence, type of schools as well as the unhealthy lifestyle e.g., physical inactivity, increased BMI and smoking. We believe that encouraging teachers to adopt better health-promoting lifestyles will improve their health and decrease their complaints.

**Keywords:** Teachers, Self-reported, Subjective, Health and Complaints.

### **Introduction**

The teaching profession is associated with occupational burdens that emerge from the particular physiological and psychological demands of the profession (Chong and Chan, 2010 ; Erick and Smith, 2011).

School teachers confront high amount of stress during work such as concentrated verbal communication, prolonged standing, much workload and studies has reported high cancer incidence, accidents and cardiac disease (Marras, et al., 2009; Bolbol et al., 2016).

Teachers may suffer mental and physical health problems due to the adverse effects of a variety of job functions, heavy occupational stress and frequent overtime work (Shimazu, 2003; Bogaert et al., 2014). Most of the previous studies focused on one type of health problems such as mental health problems, occupational stress, voice or musculoskeletal disorders.

Voice disorder represents the most prominent physical disorder among teachers, as it is directly related to their work requirements during teaching (Williams, 2003; Abo-Haseeba et al.,

2016). Ewis and Abo Haseeba in 2013 found that 46.6% of school teachers suffered from voice problems due to the prolonged vocal loading and heavy overuse of their voice during 3 months prior to the survey .

Musculoskeletal disorders; especially of low back, neck and shoulders are also among the prevalent school teachers complaints as well as health problems caused by standing for a long time and incorrect working postures (Ritvanen et al., 2004).

Other researches of different quality have been published on teachers' physical health demonstrating the main categories of physical disorders such as musculoskeletal, respiratory, cardiovascular, nervous and hormonal disorders (Kovess-Masféty et al., 2006).

However, in industries where disease causing factors is clear, it is easier to control the work circumstances, while in educational systems, particularly classroom setting, these factors are less substantial and so it would be hard to recognize and study them. Thus, less consideration has been paid to these factors (Zadeh and Fakhri, 2011).

### **Aim of work**

The aim of this work is to assess the prevalence of the self-reported health complaints among school teachers in Beni-Suef, Egypt with special emphasis to ascertain the impact of demographic, lifestyle and work-related characteristics on teachers' health.

### **Materials and methods**

**Study design:** A cross-sectional research design.

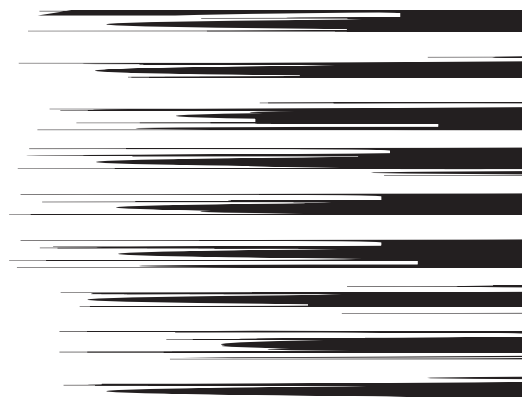
#### **Place and duration of the study:**

The study was conducted in schools of Beni-Suef governorate, located 111 km south to Cairo, Upper Egypt, during the period from February to May, 2016.

**Study sample:** Teachers who work in schools of Beni-Suef were included in the study. Multistage cluster method was used to select 13 schools from Beni-Suef district schools in order to represent private and governmental, urban and rural, primary, preparatory and secondary, boys and girls schools in the sample.

**Study methods:** We designed a self-administered questionnaire including two sections:

- The first section for personal characteristics as demographic data (gender, age, residence, marital status, education with height and weight measurement).
- Body Mass Index (BMI) was calculated by the formula weight (kg)/height (meter<sup>2</sup>), (Bray, 1993). Normal weight was defined as a BMI of  $\leq 24.99$  kg/m<sup>2</sup>, overweight as BMI from 25.0-29.99 kg/m<sup>2</sup> and obesity as BMI  $\geq 30$  kg/m<sup>2</sup>.
- Medical history and special habits (smoking, physical exercise per week, using computer, and watching TV) were also included. Occupational history and working characteristics were recorded (school type, years in current job, work hours per week, and number of teaching hours per week).



We conducted a pilot study on 20 teachers -different from the target group- to check understanding and clarity of the questionnaire. Upon the results, some linguistic changes of questions were made to avoid confusion about questions and make easier understanding and interpretation by participants.

### **Consent**

The purpose of the study was explained to all the participants prior to filling out the questionnaires. All participants had the right not to participate in the study or to withdraw from the study prior to completion of the questionnaire. Confidentiality and privacy were guaranteed for all participants and their data.

### **Ethical approval**

This study was approved by the Ethical Committee of the Department of Public Health and Occupational Medicine, Faculty of Medicine, Minia University .

### **Data management**

The statistical analysis of data was done by using the software of statistical package for social sciences, version 20 (SPSS program), (SPSS, Inc, Chicago, IL). Quantitative data were presented as means and standard deviations, while qualitative data were presented as frequency distribution and percentages. Student t-test, Chi squared test, correlations, Odds ratio (OR) with 95% confidence interval (95% CI) and regression analysis were performed whenever needed. The probability of less than 0.05 was used as the cut off point for statistical significance.

### **Results**

A total of 373 school teachers with a mean age of 40.4±8.3 years (range 23–59 years) participated in the study.

Our current study found that 84.5% of studied school teachers reported at least one or more health complaints (data not tabulated).

**Table (1): Socio-demographic and lifestyle characteristics of the studied teachers.**

Socio-demographic and lifestyle characteristics		No =373	%
Teachers' age ( years)	≤40	179	48.0
	>40	194	52.0
Teachers' sex	Female	183	49.1
	Male	190	50.9
Marital status	Single	36	9.7
	Married	323	86.6
	Divorced	5	1.3
	Widow	9	2.4
Education	Below university	12	3.2
	University	326	87.4
	Post graduate	35	9.4
Residence	Urban	305	81.8
	Rural	68	18.2
School grade	Primary	103	27.6
	Preparatory	115	30.8
	Secondary	108	29.0
	Secondary Technical	47	12.6
School type	Private	55	14.7
	Governmental and Experimental	318	85.3
School zone	Urban	316	84.7
	Rural	57	15.3
Students gender	Boys	91	24.4
	Girls	96	25.7
	Both	186	49.9
Smoking	Non smoker	323	86.6
	Ex-smoker	18	4.8
	Current smoker	32	8.6
Physical activity	Yes	35	9.4
	No	338	90.6
Using computer >2 hours/day	Yes	191	51.2
	No	182	48.8
Watching TV >2 hours/day	Yes	343	92.0
	No	30	8.0
Body Mass Index (BMI)	Normal	67	18.0
	Overweight	183	49.1
	Obesity I	102	27.3
	Obesity II	21	5.6

Table 1 showed that about 8.6% of studied school teachers were current smokers, and 90.6% of them do not practice physical activity. The teachers' BMI showed that 82% of them were overweight or obese.

**Table (2): Distribution of the self-reported health complaints according to the studied school teachers' gender.**

	Male No=190	Female No=183	Total No=373	P
	No (%)	No (%)	No (%)	
<b>Cough</b>	57 (30.0)	21 (11.5)	78 (20.9)	<0.0001**
<b>Sputum</b>	39 (20.5)	8 (4.4)	47 (12.6)	<0.0001**
<b>Hoarseness of voice</b>	42 (22.1)	29 (15.8)	71 (19.0)	>0.05
<b>Varicose veins</b>	6 (3.2)	22 (12.0)	28 (7.5)	<0.0001**
<b>Error of refraction</b>	72 (37.9)	53 (29.0)	125 (33.5)	>0.05
<b>Amnesia</b>	11 (5.8)	13 (7.1)	24 (6.4)	>0.05
<b>Headache</b>	24 (12.6)	30 (16.4)	54 (14.5)	>0.05
<b>Neck pain</b>	35 (18.4)	28 (15.3)	63 (16.9)	>0.05
<b>Shoulder pain</b>	12 (6.3)	5 (2.7)	17 (4.6)	>0.05
<b>Upper back pain</b>	12 (6.3)	4 (2.2)	16 (4.3)	<0.05*
<b>Lower back pain</b>	45 (23.7)	32 (17.5)	77 (20.6)	>0.05
<b>Joint pain</b>	38 (20.0)	17 (9.3)	55 (14.7)	<0.05*
<b>Allergy</b>	2 (1.1)	3 (1.6)	5 (1.3)	>0.05
<b>Insomnia</b>	15 (7.9)	5 (2.7)	20 (5.4)	<0.05*
<b>Tiredness</b>	46 (24.2)	35 (19.1)	81 (21.7)	>0.05
<b>Hypertension</b>	32 (16.8)	13 (7.1)	45 (12.2)	<0.05*
<b>Diabetes Mellitus</b>	18 (9.5)	8 (4.4)	26 (7.0)	>0.05
<b>Colon troubles</b>	17 (8.9)	22 (12.0)	39 (10.5)	>0.05
<b>Hepatitis B</b>	0 (0.0)	0 (0.0)	0 (0.0)	---
<b>Hepatitis C</b>	6 (3.2)	0 (0.0)	6 (1.6)	<0.05*

\*Statistically significant difference

\*\* Highly statistically significant difference

Table 2 showed that many complaints were significantly higher among males compared to females: cough (30%), sputum (20.5%), upper back pain (6.3%), joint pain (20%), insomnia (7.9%), hypertension (16.8%) and HCV (3.2%) (The difference was statistically significant) . However, only varicose veins (12%) were significantly higher among female school teachers compared to males.

**Table (3): Distribution of the self-reported health complaints among school teachers according to their age category.**

	≤ 40 No=179		> 40 No=194		Total No=373	p
	No	(%)	No	(%)	No (%)	
<b>Cough</b>	31	(17.3)	47	(24.2)	78 (20.9)	>0.05
<b>Sputum</b>	16	(8.9)	31	(16.0)	47 (12.6)	<0.05*
<b>Hoarseness of voice</b>	35	(19.6)	36	(18.6)	71 (19.0)	>0.05
<b>Varicose veins</b>	5	(2.8)	23	(11.9)	28 (7.5)	<0.0001**
<b>Error of refraction</b>	33	(18.4)	92	(47.4)	125 (33.5)	<0.0001**
<b>Amnesia</b>	10	(5.6)	14	(7.2)	24 (6.4)	>0.05
<b>Headache</b>	32	(17.9)	22	(11.3)	54 (14.5)	>0.05
<b>Shoulder pain</b>	8	(4.5)	9	(4.6)	17 (4.6)	>0.05
<b>Neck pain</b>	17	(9.5)	46	(23.7)	63 (16.9)	<0.0001**
<b>Upper back pain</b>	5	(2.8)	11	(5.7)	16 (4.3)	>0.05
<b>Lower back pain</b>	29	(16.2)	48	(24.7)	77 (20.6)	<0.05*
<b>Joint pain</b>	8	(4.5)	47	(24.2)	55 (14.7)	<0.05*
<b>Allergy</b>	1	(0.6)	4	(2.1)	5 (1.3)	>0.05
<b>Insomnia</b>	9	(5.0)	11	(5.7)	20 (5.4)	>0.05
<b>Tiredness</b>	30	(16.8)	51	(26.3)	81 (21.7)	<0.05*
<b>Hypertension</b>	7	(3.9)	38	(19.6)	45 (12.2)	<0.0001**
<b>Diabetes Mellitus</b>	4	(2.2)	22	(11.3)	26 (7.0)	<0.05*
<b>Colon troubles</b>	25	(14.0)	14	(7.2)	39 (10.5)	<0.05*
<b>Hepatitis B</b>	0	(0.0)	0	(0.0)	0 (0.0)	---
<b>Hepatitis C</b>	0	(0.0)	6	(3.1)	6 (1.6)	<0.05*

\*Statistically significant difference

\*\* Highly statistically significant difference

Table 3 showed that sputum (16%), varicose veins (11.9%), errors of refraction (47.4%), neck pain (23.7%), lower back pain (24.7%), joint pain (24.2%), general tiredness (26.3%), hypertension (19.6%), diabetes mellitus (11.3%) and HCV (3.1%) were significantly higher among school teachers whose age was more than 40 years while teachers of ages less than or equal to 40 years were significantly more complaining from colon troubles (14%).

**Table (4): Significant relationship between the self-reported health problems and smoking status among male teachers.**

	Non smokers	Ex-smokers	Current smokers	Total	p
	No (%)	No (%)	No (%)	No (%)	
<b>Cough</b>	24 (17.1)	5 (27.8)	28 (87.5)	57 (30.0)	<0.0001**
<b>Sputum</b>	11 (7.9)	2 (11.1)	26 (81.2)	39 (20.5)	<0.0001**
<b>Total</b>	140 (100.0)	18 (100.0)	32 (100.0)	190 (100.0)	

\*\* Highly statistically significant difference

Table 4 illustrated that cough (87.5%) and sputum (81.2%) were significantly higher among male school teachers who were current smokers than none or ex-smokers.



**Table (5): Factors influencing the probability of having self-reported health complaints among the studied school teachers.**

Variables	Categories	Complaints		X <sup>2</sup>	p	OR	CI 95%
		NO complaint No (%)	Have complaints No (%)				
Age ( years)	~ 40	45 (25.1)	134 (74.9)	24.1	<0.0001**	3.75	2.09 – 6.72
	41 – 60	13 (6.7)	181 (93.3)				
Gender	Female	41 (22.4)	142 (77.6)	12.86	<0.0001**	2.50	1.48 – 4.24
	Male	17 (8.9)	173 (91.1)				
BMI	Normal	17 (25.4)	50 (74.6)	6.02	<0.005*	1.89	1.15 – 3.12
	>25	41 (13.4)	265 (86.6)				
School type	Private	16 (29.1)	39 (70.9)	9.01	<0.005*	2.20	1.34 – 3.63
	Governmental	42 (13.2)	276 (86.8)				
Smoking	Non/ex-smoker	57 (28.6)	283 (71.4)	4.32	<0.005*	5.53	0.79 – 38.67
	Current smoker	0 (0.0)	32 (100.0)				
Physical activity	Yes	10 (28.6)	25 (71.4)	4.99	<0.005*	2.01	1.12 – 3.61
	No	48 (14.2)	315 (85.8)				
Watching TV	No	11 (36.7)	19 (63.3)	11.08	<0.005*	2.68	1.56 – 4.59
	Yes	47 (13.7)	296 (86.3)				
Using Computer	No	26 (14.3)	156 (85.7)	0.43	>0.005	1.03	0.94 – 1.12
	Yes	32 (16.8)	159 (83.2)				
Subjects	Theoretical	37 (14.0)	228 (86.0)	1.36	>0.005	1.06	0.96 – 1.19
	Practical	21 (19.4)	87 (80.6)				
Residence	Urban	46 (15.1)	259 (84.9)	0.28	>0.005	1.03	0.92 – 1.16
	Rural	12 (17.6)	56 (82.4)				

BMI= Body Mass Index

OR = Odds Ratio

CI = Confidence interval

\*Statistically significant difference

\*\* Highly statistically significant difference

Table 5 showed the OR (95%CI) and the main risk factors for the school teachers to have subjective health complaints. These self-reported complaints were significantly higher among male school teachers (91.1%), aging 41-60 years (93.3%), whose BMI >25 (86.6%), physically inactive (85.8%), from governmental schools (86.8%), who were current smokers (100.0%), and spending more than 2 hours/day watching TV (86.3%) .

### Discussion

The current study aimed at evaluating the prevalence of self-reported health complaints among school teachers in Beni-Suef, governorate, Egypt. Our results showed that about 84.5% of school teachers have at least one or more health complaints. This result is in agreement with Chong and Chan (2010) study among school teachers in Hong Kong, who detected that the prevalence of subjective health complaints was very high reaching up to 99.5% among teachers who suffered at least of one type of complaint.

Several specific complaints were found to be associated with the teaching profession. The most frequently reported complaints among Beni Suef teachers included errors of refraction (33.5%), tiredness (21.7%), cough (20.9%), low back pain (20.6%), hoarseness of voice (19%), neck pain (16.9%), joint pain (14.7 %), headache (14.7%), hypertension (12.2%), colon troubles (10.5%), varicose veins (7.5%) and diabetes mellitus (7.0%) (Table 2). These findings are generally, comparable to other studies of Chong and Chan (2010) and Erick and

Smith (2011) who reported their most frequent teachers' health complaints as tiredness, eyestrain, voice disorders and musculoskeletal disorders.

Musculoskeletal problems, e.g., shoulder and back pain among teachers may be associated with incorrect working posture during marking homework and writing on the upper part of blackboards (Ritvanen et al., 2004). Moreover, teachers are susceptible to suffer from voice problems because of their job nature. Our findings here are close to that of Russell et al., (1998) of South Australia and Ewis and Abo Haseeba (2013) of Beni Suef, Egypt who found 16% and 18.6% of their studied teachers had voice problems on the day of the survey, respectively. Besides, musculoskeletal disorders, teachers are more likely to develop varicose veins. Our results are parallel to other studies which reported that teachers are exposed to develop varicose because of the prolonged hours of standing; and this varicose veins is more prevalent among female teachers than their male colleagues (Lee et al., 2003 ; Kovess-Masféty et al., 2006 ; Chong and Chan, 2010).

As regards the distribution of health complaints among teachers by sex, male teachers reported a significant higher prevalence for most self-reported complaints than female teachers (cough, sputum, upper back pain, joint pain, insomnia, hypertension and HCV), (Table 2). This disagreed with what was reported in Chong and Chan (2010) study in Hong Kong, and Erick and Smith (2014) study among school teachers in Botswana who reported that female teachers' complaints of low back pain were significantly higher than males. Additionally, other studies showed that female teachers reported significantly higher rates of health problems than males, suggesting that their lower physical strength, lower pain threshold and combining career and household tasks as the main reasons (Erick and Smith, 2011 ; Yue et al., 2012 ; Bogaert et al., 2014).

The higher prevalence of health complaints among male teachers could be explained by their unhealthy lifestyle (smoking), higher load from their family requirements or career prospects, higher workload, or simply the fact that males and females have

distinctive traditions and thresholds for when and how to complain.

The current study showed that increasing age of school teachers was significantly associated with increased prevalence of most subjective health complaints particularly musculoskeletal (neck pain, lower back pain, joint pain), chronic diseases (hypertension, diabetes mellitus) and others (sputum, varicose veins, errors of refraction, general fatigue, and HCV), (Table 3). These findings were in agreement with Kovač and co-workers study among Slovenian teachers (2013) who reported that the increasing age generally increases the OR for all occupational health problems (the OR increased between 1.01 and 1.11 for each year of age). Other studies with similar findings interpreted the association of higher health complaints with increased age and duration of employment as the effect of aging in addition to the cumulative effect of workload on teachers' health (Erick and Smith, 2011 ; Bogaert et al., 2014).

Error of refraction, lower back pain and allergy were significantly reported among school teachers from experimental school (39%,

25.4% and 6.8% respectively), while shoulder pain, neck pain, joint pain and hypertension were significantly reported among teachers from governmental schools (6.6%, 20.1%, 18.1% and 15.4, respectively), (data not tabulated). Worth to say that both types of schools are governmental and their teachers have significantly higher subjective health complaints than teachers of private schools, ( $p=0.005$ ), with an OR (95%CI) 2.2 (1.34-3.63), (Table 5). These results are parallel to that of Darwish and Al-Zuhair (2013) who reported that governmental female teachers were more likely to have musculoskeletal problems than private school ones ( $p = 0.038$ ). Additionally, we propose that such difference can be attributed to stressful work conditions with large number of students in classes of governmental schools; in addition to the limited educational resources and the inadequate reward for their work.

More interestingly, school teachers from rural areas reported significantly more HCV infection (5.9%) than teachers from urban ones (data not tabulated). Regarding the prevalence of HCV among the Egyptian population,

several studies had shown that it is higher among those who live in rural areas compared to the urban ones. From a nationwide survey, HCV antibody prevalence nationwide was significantly higher in rural compared to urban areas (18.3% versus 10.3%, respectively,  $P < 0.001$ ), (Guerra et al., 2012). Another study on blood donors confirmed the higher prevalence among Egyptians living in rural areas than those living in urban areas (14.1%, 6.8% respectively, OR=2.3) (EIDamaty et al., 2007).

Our study showed that smoking, lack of physical exercise, spending much time in watching TV and increased BMI as overweight or obesity were significantly associated with more self-reported health complaints among school teachers, with significant OR as shown in Table 5. These results are parallel to what was illustrated in the studies of Erick and Smith 2014 and Bogaert et al., 2014 who reported that teachers with physical inactivity and BMI higher than 25 kg/m<sup>2</sup> tended to show poorer physical health and lower levels of physical fitness than their colleagues. Moreover, they confirmed that regular physical exercise, with

more than 5 hours/week of exercise, remained associated with diminished odds of reporting low back pain, compared to those with less hours of physical exercise. Also Owen et al., 2010 and Lee et al., 2012 declared that sedentary life has been constantly associated with more health problems.

Lifestyle has been established as one of the vital factors influencing health. A health-promoting lifestyle, defined as a “multidimensional pattern of self-initiated actions and perceptions that serve to maintain or improve the level of health, self-actualization, and satisfaction of the individual”, can diminish the illness rate, lower the death rate and contribute to improved health status (Bi et al., 2014).

### **Conclusion**

Overall, this study has reported that many subjective health complaints are reasonably addressed among school teachers in Beni-Suef governorate, and different risk factors were identified, suggesting that the etiology of these conditions are complex and multifactorial in nature. Male gender, aging, residence, type of schools with unhealthy lifestyle such as physical

inactivity, increased BMI and smoking were positively associated with higher prevalence of self-reported health complaints. The complex nature of the risk factors that were suggested by our study requires integrated specific preventive or interventional strategies that can help in reducing these prevalent health complaints.

**Limitations** The current study has a number of limitations. Being a cross-sectional research, only description of the school teachers' health complaints with suggested associations can be established but no inferences of causality can be made. Further limitations of this study include the possibility of having recall bias. Due to depending solely on the self-reported health complaints without objective clinically-verified diagnosed health problems, it is not clear if the participants correctly remembered and reported their health problems which could lead to over or under estimation.

### **Recommendations**

In this study, a reference database for the self-reported health problems prevalence in the teaching profession was established. The findings of this

research can increase the awareness of the public that teachers' health problems are also worth paying close attention to. Also, this research could serve as a useful reference for the governmental organizations such as the ministry of education during policies and strategies formulation to help the teachers relieve and cope with their health problems. Moreover, with the information on the main sources of teachers' complaints, the government should consider teachers' conditions while establishing new education policies or reforms. Finally, our study can motivate other researchers to conduct further in-depth studies to investigate Egyptian teachers' occupational health problems.

#### **Conflict of interest**

There is no conflict of interest; and there weren't any funding agencies for this study.

#### **Acknowledgement**

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