A Comparative Study Of Health-Related Quality of Life (HRQoL) of Schoolteachers from the Largest Primary and Secondary Schools in urban Shah Alam, Malaysia: a cross sectional study

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Abstract—Most studies on health-related quality of life (HRQoL) of teachers focused on work stress and mental health problems and ignore issues of their physical health problems. Studies on the HRQol of teachers in Malaysia are also limited. This study has been conducted to investigate the HRQoL in teachers of the largest primary and secondary schools in Shah Alam. The study utilised the SF36v2 questionnaire which elicits data on HRQoL factors measured using eight domains, namely, physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional and mental health.

A cross-sectional study was conducted and teachers were selected using simple random sampling from the largest primary and secondary schools in Shah Alam. The SF36v2 questionnaire with socio demographic information was distributed to the teachers and collected within one week. A total of 175 teachers participated in the study, of which 89 are primary and 86 are secondary school teachers. Descriptive analyses and independent samples t-test were used to analyse the data.

It is found from this study that the HRQoL of schoolteachers are lower than the general population norm for most of the domains except general health and bodily pain. Primary schoolteachers performed better in role physical and role emotional compared to secondary schoolteachers. However, secondary schoolteachers have better physical functioning compared to primary schoolteachers. Physical functioning of the schoolteachers is affected by marital status, type of school and teaching experience. Their role physical is affected by age, type of school and appointment as classroom teacher and their role emotional is affected by age, type of school and appointment as classroom teacher. Schoolteachers in this study have shown that they have problems with their health related quality of life. The limitation of this study is that it is conducted at one largest primary school and secondary school in urban Shah Alam thus it might not represent all teachers in Shah Alam and urban areas in Malaysia. However, it should be noted that Shah Alam is a growing urban settlement and an industrial city thus this study has been able to provide some evidence that the HRQoL of teachers in an urban area are much lower than the general population norm. Thus, it is a guide to policymakers and authorities in the education field to develop better policies and suitable programs to improve the quality of life of teachers.

Keywords- Health-related quality of life (HRQoL), schoolteachers, SF36v2, physical health, mental health

I. INTRODUCTION

With increased salary, six working hours compared to others with at least 8 working hours and long school holidays as well as the great opportunity to affect the lives of the nation's youths, schools are excellent places to work, insists the government. However, teachers complain that they lack professional respect from others, get bogged down by routine, have inadequate time for contact with other adults and they face frustration when idealistic goals collide with student apathy and parent hostility. At present, Malaysian teachers are not limited to only teaching but they also have to prepare lesson plans, examinations questions, take note of students' attendance, fill in the discipline books and assess students' homework. In addition, the teachers are involved in students extra -curricular activities such as clubs and societies and prepare sports day. As a result, teachers might suffer mental and health problems due the variety job functions.

Most past studies on schoolteachers focused on factors that contribute to stress and teacher's burnout [1],[2] which may adversely affect their mental health. Another study by Yin [3] focused on Occupational Health problems for teachers from primary and secondary schools in Hong Kong. A recent study conducted on behalf of the National Union of Teaching Profession (NUTP) found that 70% out of 9000 teachers in Malaysia suffer from depression [4]. Reasons for depression are not only the heavy workload but also due to dealings with headmaster, clerks, parents and students. It also mentioned that according to NorZuraida Zainal, senior psychiatrist consultant at University Malaya Medical Centre, it is estimated that out of the 22,000 patients that seek treatment annually, 10% of them are teachers. Patients according to her looked normal and in actual fact are very hardworking and productive although they have limited amount of time to carry their duties.

Search on PubMedline found 17 citations of health-related quality of life (HRQoL) in Malaysia but however there was none on the HRQoL among schoolteachers.

II. HEALTH RELATED QUALITY OF LIFE(HRQoL)

A study by Ismail [5] mentioned that Juniper [6] defined health-related quality of life (HRQoL) as the component of the overall quality of life that is determined primarily by health status and focuses on the physical, psychological and social domains. She also mentioned that according Fayers and Machin [7], WHO (World Health Organisation) defined health as not only being the absence of disease, but the presence of physical, mental and social well-being. It is this definition of health that recognises and stresses the importance of the three domains: physical, mental and social in assessing quality of life. Healthy People [8] defined HRQoL as factor that clearly affects the physical or mental health on individuals and communities. It also focuses on the changes in physical and mental health dimensions that may occur with disease, aging, or alterations in functional status. The reason that studying the HRQoL among school teachers is very important is because their HRQoL does not only affect them but it also give impact on the students' performances as well as the manner in which teachers handle responsibilities in the educational setting. Good health-related quality of life among schoolteachers is needed to produce good quality students and good quality new generation.

III. THE HRQOL INSTRUMENT (SF36V2)

The SF-36v2 is a multi-purpose, short-form health survey with only 36 questions. It yields an 8-scale profile of functional health and well-being scores as well as psychometrically based physical and mental health summary measures and a preference-based health utility index. The SF36v2 is a generic measure that incorporates the core domains as delineated by WHO and has been proven useful in surveys of general and specific populations [5]. It has been translated into Malay version and tested on the validity and reliability in Malaysian population [9]. Permission to use The SF36v2 Health Survey was obtained from Quality Metric Incorporated [10]. In this study, two versions of languages, English and Malay versions were used as appropriate to the respondents. The 36 questions in SF36v2 measures the following eight domains of health: limitations in physical activities because of health problems (3a-3j), limitations in usual role activities because of physical health problems (4a-4d), bodily pain(7-8), general health perception (1,11a-11d), vitality(energy and fatigue) (9a, 9e, 9g, 9i), limitations in social activities due to physical or emotional problems (6,10), limitations in usual role activities because of emotional problems (5a-5c) and mental health (psychological distress and well being (9b-9d, 9f, 9h). Figure 1 below shows the taxonomy of the SF36v2 measurement model. Three scales Physical Functioning (PF), Role Physical (RP) and Bodily Pain (BP) correlate most highly with the physical component and contribute most to the scoring of the Physical Component Summary (PCS) measure (Ware et al., 1994). The mental component correlates most highly with the Mental Health (MH), Role-Emotional (RE), and Social-Functioning (SF) scales, which also contribute to the scoring Mental Component Summary (MCS) measure.

Three of the scales (VT, GH, and SF) have noteworthy correlations with both components.
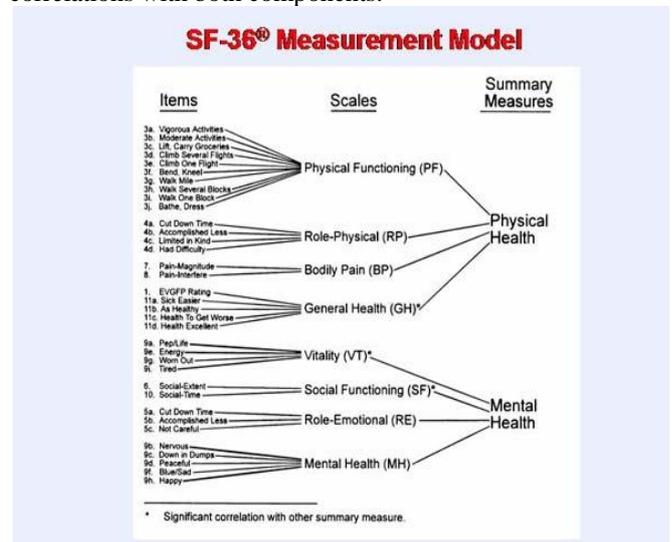

Figure I

IV. RESEARCH METHODOLOGY

A. Study Design

This is a cross sectional study with teachers from the largest primary and secondary schools in Shah Alam as the target population. Shah Alam is chosen because it is a growing urban settlement and a new industrial city in Malaysia. The selections of the schools from this city are based on the schools with largest number of students and teachers. Permission to distribute questionnaire to the schoolteachers was obtained from The Ministry of Education Malaysia and Selangor State Education. Excluded criteria include teachers who are under practical training or replacement teachers, those who have serious illness such as diabetes and those who do not give consent.

B. Sampling Technique

After identifying the largest primary school and secondary schools in Shah Alam, simple random sampling was used to select the teachers from both schools. The teachers within each school were randomly chosen based on the name list of teachers by using random number table.

C. Sample Size Calculation

According to Sekaran [11], sample size is governed by the extent of precision and confidence desired to determine the sample size required in any research.

Table for sample size calculation by Krejcie and Morgan [12] in the book by Sekaran [11] revealed that for a given population of 120 teachers, a sample size of 92 is required to represent primary schoolteachers. For a given population of 150, a sample size of 108 teachers is required to represent secondary schoolteachers,

D. Statistical Analysis

A pilot study was conducted to gather prior information and to test the questionnaire for reliability. Cronbach's Alpha

was calculated to determine the internal consistency or average correlation of items in a survey instrument to gauge its reliability. Descriptive statistics such as percentage mean and standard deviation were used to describe the collected data. Independent sample t-test was used to investigate whether school teachers in primary and secondary schools are different in terms of their perceptions on the eight HRQoL domains. However, data are first checked for normality and equality of two variances to fulfill the assumptions for independent t-test.

Multiple regression analysis was further conducted to find predictors of their HRQoL. Tests for normality, homoscedasticty and multicollinarity were conducted.

For all the tests conducted, a p value of ≤ 0.05 is considered statistically significant.

V. RESULTS

A. Response Rates

Table I shows the response rates for both groups. Response rate for primary schoolteachers was 100% since all of the 92 questionnaires were returned within a week. Unfortunately, only 89 questionnaires were included in this analysis. One questionnaire was excluded because the respondent did not answer more than 50% in Part B (The Health Survey) as recommended by SF36v2. Another two questionnaires could not be analyzed because the respondents were disqualified since they suffer serious health problems which include spinal column operation. Response rate for the secondary schoolteachers was 81%. Out of 108 questionnaires distributed, 87 questionnaires were returned. However, one questionnaire was discarded since the respondent only answered Part A (Demographic Data) of the questionnaire.

B. Reliability

Fayers and Machin [7] suggested that Cronbach's alpha values above 0.7 are acceptable for psychometric scales, although it is recommended that values should be above 0.8 (good) or even 0.9 (excellent). In this study, six of the eight domains of SF36v2 has Cronbach's alpha value of greater than or equal to 0.7 (Table II) showing acceptable to excellent internal consistency. They are physical functioning (0.86), role physical (0.93), bodily pain (0.80), general health (0.70), vitality (0.76) and role emotional (0.95). Cronbach's Alpha for the other two domains is less than 0.7 and they are social functioning (0.55) and mental health (0.69). The Cronbach's Alpha across the domains with 36 items also showed excellent internal consistency with value 0.94.

Table I

Response Rates of Primary and Secondary School Teachers	Questionnaires			
	Distributed (Sample Size)	*Returned (Response Rate)*	*Discarded*	*Included in Analysis*
Primary Secondary Total	92 108 200	92(100%) 87(80.5%) 179(79.5)	3 1 4	89 86 175

Response Rates of Primary and Secondary School Teachers	Questionnaires			
	Distributed (Sample Size)	*Returned (Response Rate)*	*Discarded*	*Included in Analysis*

Table II

Reliability of SF36v2	Value of Cronbach's Alpha		
	Domain/Overall	*Number of Items*	*Cronbachs Alpha*
	Physical Functioning	10	0.86
	Role Physical	4	0.93
	Bodily Pain	2	0.80
	General Health	5	0.70
	Vitality	4	0.76
	Social Functioning	2	0.55
	Role Emotional	3	0.95
	Mental Health	5	0.69
	Across the domains	36	0.94

C. Demographic Profile

Table III gives the demographic profile of the respondents in number and percentages. 89(50.9%) and 86(49.1%) of the respondents are primary and secondary schoolteachers respectively. Majority (88.6%) of the respondents are females. About half (51.2%) of the primary school teachers are between 31 to 40 years of age, 26.2% are between 21 to 30 years of age and 22.6% are between 41 to 50 years of age in comparison to 37.5%, 32.5% and 30% for the secondary schoolteachers respectively. 89.9% of the primary schoolteachers and 87.2% of the secondary schoolteachers are married. The percentage of secondary schoolteachers who have more than 2 children (56.3%) is higher than the percentage for primary schoolteachers (36.8%). About 91% of the secondary schoolteachers hold a degree in comparison to about 34% of the primary schoolteachers. Majority (60.7%) of the primary schoolteachers hold a diploma. In terms of teaching experience, 15.1% and 7.15% of the primary schoolteachers and secondary schoolteachers respectively have been teaching for more than 20 years. The percentage of those who have had between 11 to 20 years teaching experience for the primary schoolteacher (33.7%) is slightly lower than that of the secondary schoolteachers (37.0%). 65.2% of the primary schoolteachers and 54.7% of the secondary schoolteachers are classroom teachers which mean they do not only teach but also keeps reports and monitor students' progress in all areas; academic, discipline and extra-curricular activities. Only 17% and 23% of the primary and secondary schoolteachers respectively are teaching science. The rest are non science teachers.

Table III

Demographic Profile of Both Groups	SchoolTeachers	
	Primary	*Secondary*
Gender Male	14 (15.7)	6 (7.0) 80 (93.0)

Demographic Profile of Both Groups	SchoolTeachers	
	Primary	*Secondary*
Female	75 (84.3	
Age		26 (32.5)
21-30 years old	22 (26.2)	30 (37.5)
31-40 years old	43 (51.2)	24 (30.0)
41-50 years old	19 (22.6)	
Marital Status		11 (12.8)
Single	9 (10.1)	75 (87.2)
Married	80 (89.9)	
Number of Children		31 (43.7)
0-2	50 (63.2)	40 (56.3)
3-8	29 (36.8)	
Educational Level		0 (0.0)
SPM	2 (2.2)	0 (0.0)
STPM	3 (3.4)	7 (8.1)
Diploma	54 (60.7)	78 (90.7)
Degree	30 (33.7)	1 (1.2)
Master	0 (0.))	
Teaching Experience		6 (7.1)
< 1 year	2 (2.3)	17 (20.2)
1-5 years	22 (25.6)	21 (25.0)
6-10 years	20 (23.3)	20 (23.8)
11-15 years	21 (24.4)	14 (16.7)
16-20 years	8 (9.3)	6 (7.1)
>20 years	13 (15.1)	
Classroom Teacher		47 (54.7)
Yes	58 (65.2)	39 (45.3)
No	31 (34.8)	
Main Subject Teaching		20 (23.3)
Science	15 (16.9)	66 (76.7)
Non Science	74 (83.1)	

D. Comparing the Means of HRQoL Domains for Both Groups

According to Medical Outcome Studies (MOS)[13], mean scores of 100 are considered excellent, between 84 -99 very good; between 61-83 good; between 25-60 fair and between 0-24 poor. It is discovered that most of the mean scores of the domains for primary schoolteachers are considered good since they are within the range of 61 to 83 except for vitality and mental health. The mean scores of these two domains are just fair since they are less than 60. Four of the domains for secondary schoolteachers however are considered fair since they are less than 60. These include role physical, vitality, role emotional and mental health. The other four domains, which include physical functioning, bodily pain, general health and social functioning are considered good.

Table IV below compare the mean scores of each HRQoL domains for both groups. The mean scores of four of the eight domains for the primary schoolteachers are higher than those of the secondary schoolteachers. They are role physical (primary-63.82, secondary- 55.77), bodily pain (primary-68.07, secondary-67.81), social functioning (primary-71.49, secondary-70.78) and role emotional (primary-64.70, secondary 50.78). However, only the mean scores for role physical and role emotional are statistically significant ($p<0.05$). The mean scores for vitality and mental health are about the same for groups (primary-48.31, secondary-48.04) and (primary-54.94, secondary-54.77) respectively. Nevertheless, they are not statistically significant. For the other two domains; physical functioning and general health, the mean scores for the primary schoolteachers are lower than that of the secondary schoolteachers (primary-65.31, secondary-74.23; primary-65.81, secondary 69.62) but only the mean scores for physical functioning are statistically significant ($p<0.05$).

Table IV

Mean and Std. Dev. For SF36v2 Domains	Schoolteachers				
	Primary n=89		*Secondary n=86*		
	Mean	Std. Dev.	Mean	Std. Dev.	*p-value* (2 tailed test)
Physical Functioning	65.31	20.90	74.23	18.35	0.00
Role Physical	63.82	14.56	55.77	16.52	0.00
Bodily Pain	68.07	19.27	67.81	17.80	ns
General Health	65.81	18.76	69.62	16.28	ns
Vitality	48.31	15.13	48.04	14.98	ns
Social	71.49	21.89	70.78	21.57	ns
Role Emotional	64.70	14.09	50.78	16.97	0.00
Mental Health	54.94	14.95	54.77	13.13	ns

Figure II on the next page compares HRQoL of both groups with the general Malaysian population norms. The radar chart clearly shows that the mean scores for most of the domains of SF26v2 for schoolteachers, both primary and secondary are lower than that of the general Malaysian population norm. The mean scores of six of the domains for both groups of schoolteachers; namely physical functioning, role physical, vitality, social functioning, role emotional and mental health are much lower than general population norm. Mean scores of bodily pain and general health for both groups are somewhat similar to those of the general population norm.

E. Multiple Regression Analysis

Multiple regression analysis was further carried out on all the domains and the model is statistically significant for the three domains physical functioning, role physical and role emotional ($p<0.05$). Nine predictor variables were used in the models which include gender, age, marital status, and number of children, educational level and teaching experience, type of school, classroom teacher and main subject teaching. The test for multicollinearity was

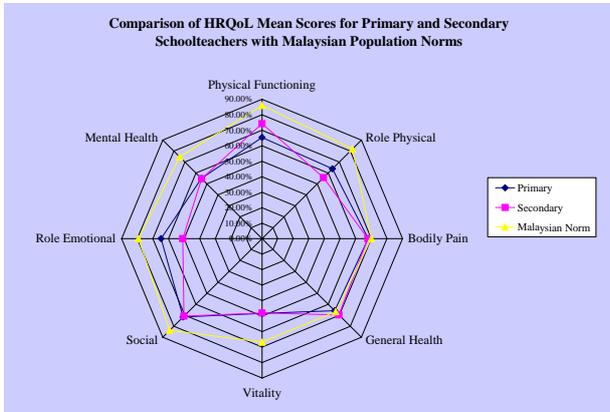conducted and the problem does not exist for any of the variables.

Figure II

Out of the 9 predictor variables, six are categorical variables. However, only 3 predictor variables were found to significantly contribute to predict the mean scores of physical functioning and they are marital status and teaching experience with $p<0.05$ and type of school with $p<0.01$. Equation (1) below is the estimated regression function for physical functioning.

$$\hat{Y} = 88.29 + 8.69\,X_3 - 0.11\,X_6 + 10.38\,X_7 \quad (1)$$

where ;

$\hat{Y}$ is Physical functioning

X_3 is Marital Status $\begin{cases} 1 & Married \\ 0 & Single \end{cases}$

X_6 is Teaching Experience (months)

X_7 is Type of School $\begin{cases} 1 & Secondary \\ 0 & Primary \end{cases}$

With other independent variables held constant, the physical functioning of a married schoolteacher is found to be 8.69% higher than a single schoolteacher. For every 10 months increase in teaching experience, the physical functioning of a schoolteacher is reduced by 1.10%. The physical functioning of a secondary schoolteacher is found to be 10.38% higher than that of a primary schoolteacher. The adjusted R-square for this model is 0.36.

Role physical of schoolteachers can be determined by age, type of school and classroom teacher with $p<0.01$. Equation (2) below is the estimated regression function for role physical is:

$$\hat{Y} = 26.40 + 1.12\,X_2 - 8.66\,X_7 - 5.84\,X_8 \quad (2)$$

where;

$\hat{Y}$ is Role physical

X_2 is Age (years)

X_7 is Type of school $\begin{cases} 1 & Secondary \\ 0 & Primary \end{cases}$

X_8 is Classroom teacher $\begin{cases} 1 & Yes \\ 0 & No \end{cases}$

For every 1 year increase in age, role physical is increased by 1.12% where all the other variables are held constant. In contrast to physical functioning, role physical of a secondary school teacher is 8.66% lower than primary schoolteachers. If a schoolteacher is appointed as a classroom teacher, the role physical will be lower by 5.84%. The adjusted R-square is 0.47.

Age, school type and appointment as a classroom teacher are the factors that affect role emotional of schoolteachers. Equation (3) below is the estimated regression function for role emotional is:

$$\hat{Y} = 20.04 + 1.10\,X_2 - 11.66\,X_7 - 8.29\,X_8 \quad (3)$$

where:

$\hat{Y}$ is Role Emotional

X_2 is Age (years)

X_7 is Type of school $\begin{cases} 1 & Secondary \\ 0 & Primary \end{cases}$

X_8 is Classroom teacher $\begin{cases} 1 & Yes \\ 0 & No \end{cases}$

For every 1 year increase in age, role emotional of a school teacher is increased by 1.10% while other independent variables are held constant. The role emotional of a secondary schoolteacher is 11.66% lower than that of a primary schoolteacher. Role emotional of an appointed classroom teacher is 8.29% lower than her counterpart. The adjusted R square for this model is 0.59

VI. DISCUSSION AND CONCLUSION

It can be concluded that the SF36v2 is a reliable and valid instrument to be used in this study to compare the HRQoL between primary and secondary schoolteachers. It is revealed that the HRQoL of secondary schoolteachers is lower than that of the primary schoolteachers especially role physical and role emotional. The physical functioning of secondary schoolteachers however is much better than that of the primary schoolteachers. The differences in the scores for role physical, role emotional and physical functioning of primary and secondary schoolteachers is maybe due the different roles that they have to play. Primary schoolteacher teaches younger children between the ages of 7 and 12 who are much more physically active. On the other hand, secondary schoolteachers have to handle teenage schoolchildren between the ages of 13 to 17 who are undergoing both physical and emotional changes to become adults and thus have more impact on the HRQoL of the

teachers. It is also discovered that both groups of teachers have lower HRQoL than the general Malaysian population norm. This is true for all domains except bodily pain and general health. This study seems to support findings by Yin [5] who mentioned that teachers were found to report a lot on musculoskeletal complaints thus the lower scores on physical functioning. It is also congruent to studies by Chan [14] and Kyriacou and Sutcliffe [15], who discovered that stress problems affect mental and physical health of teachers.

When multiple regression analysis was conducted on all the eight domains as the independent variables, the model is statistically significant for only three domains; physical functioning, role physical and role emotional. Three dependent variables are found to be statistically significant in predicting physical functioning of schoolteachers and they are marital status, teaching experience and the type of school. Married schoolteachers have better physical functioning than married schoolteachers which is surprising since we would expect the opposite. As teaching experiences increase, physical functioning decreases. Primary schoolteachers score lower in physical functioning compared to their counterpart.

Three variables are also found to be statistically significant in predicting role physical of schoolteachers and they are age, type of school and classroom teacher. As age increases, role physical decreases. However, the finding of this study contradicts that conducted by Yin [5] that suggests physical health decreases as age increases. Role physical is higher for primary schoolteachers and those who are not classrooms teachers.

Age, type of school and appointment as classroom teacher are factors that affect role emotional of schoolteachers. As age increases, role emotional increases suggesting that older teachers have better role emotional that the younger ones. Primary schoolteachers have lower role emotional scores compared to the secondary schoolteachers and support the earlier analysis on the differences between the mean scores of role emotional of both groups. Teachers who have been appointed as classroom teachers have lower role emotional scores than those who are non classroom teachers. The results on role emotional in this study support findings by Yin [5] who discovered that age, type of school and classroom teachers affect their mental health. Role emotional is one of the components of mental heath [13].

It should be noted that this is the first HRQoL study on schoolteachers in Malaysia conducted on the largest primary and secondary schools in urban Shah Alam. It is able to provide some evidence that the HRQoL of schoolteachers are affected by age, marital status, teaching experience, type of school and whether a teacher is appointed as a classroom or not. However, it might not represent the whole population of schoolteachers in Malaysia or even urban areas in Malaysia but it does suggest that some steps and measures could be taken by relevant authorities like the Ministry of Education Malaysia to provide help to improve the HRQoL of schoolteachers. This study is also a starting point to more studies in future on HRQoL of teachers and educators which should include more samples of schoolteachers across the country. Thus a more accurate analysis of the HRQoL of schoolteachers in Malaysia could be obtained.

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