

Towards a Model for the Determinants of Occupational Stress Among Schoolteachers

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The determinants of stress in teaching were investigated in a context which allowed many of the characteristics of an educational system to be incorporated in the design. Using a specially developed self-report instrument, 545 secondary schoolteachers in Malta reported the perceived levels of stressfulness of 35 items covering various aspects of the teacher's work environment. One-third of the respondents rated being a teacher as either very stressful or extremely stressful. A principal components analysis of the data on the 35 sources of stress yielded a four-factor structure described in terms of 'pupil misbehaviour', 'poor working conditions', 'poor staff relations' and 'time pressures'. Repeated measures ANOVA of the factor scores revealed a number of significant two-way and three-way interactions involving the demographic variables of sex, age, type of teaching post, type of school selectivity, type of single-sex school, size of school, and type of curriculum subject/s taught.

Introduction

The last fifteen years have witnessed a steady increase of interest in the occupational stress of teachers. The literature on the subject indicates that rather than being a problem specific to teachers in some particular context the phenomenon is very much a cross-cultural one (Kyriacou, 1987). In their attempts to understand teacher stress, its consequences and possible ways of coping effectively with it, researchers in different countries have tried to identify some of the major sources of stress for teachers and the dimensional (factor) structure underlying these sources.

Stress factors

In spite of differences in the type of teacher samples and the contexts in which investigations have been carried out, a number of stress factors have been consistently and commonly identified

in various studies. Although not emerging in the same order or necessarily described in the same terms, factors encompassing sources of stress dealing with pupil behaviour and time demands have been extracted from data obtained from English comprehensive schoolteachers (Kyriacou & Sutcliffe, 1978a), teachers in grades K-12 in the U.S.A. (Clark, 1980), Australian primary and secondary schoolteachers (Laughlin, 1984), West Indian secondary schoolteachers (Payne & Furnham, 1987), Nigerian teachers (Okebukola & Jegede, 1989), and Maltese primary schoolteachers (Borg, Riding, & Falzon, 1991). Typically, items dealing with pupil behaviour cover such aspects as dealing with pupils who continually misbehave and poor work attitudes of pupils whereas the stress factor 'time pressure' is composed of sources of stress like 'covering the syllabus in the time available' and 'lack of time for marking and lesson preparation'.

'Pupil behaviour' is a stress factor readily identifiable with the teaching profession. Another such factor which has been widely reported is 'poor school ethos' (Kyriacou & Sutcliffe, 1978a; Payne & Furnham, 1987; Okebukola & Jegede, 1989). This factor encompasses aspects like 'inadequate disciplinary policy of school' and 'lack of opportunity to express one's point of view in school's decision-making'.

Not surprisingly, a number of major stress factors for teachers are parallel to those found in other occupations; 'time pressure' (described above) and 'working conditions' are two such factors (see for example Cooper & Marshall, 1975). A number of researches on stress in teaching have reported the latter factor (Kyriacou & Sutcliffe, 1978a; Laughlin, 1984; Payne & Furnham, 1987; Okebukola & Jegede, 1989; Borg et al., 1991), which typically encompasses items dealing with aspects of professional development (e.g. poor career structure and inadequate salary) and poor school facilities (e.g. large classes, shortage of equipment).

Other factors which have been identified include 'poor staff relationships' (conflict among staff, lack of friendly and supportive atmosphere among staff) (Clark, 1980; Galloway, Panckhurst, Boswell, Boswell, & Green, 1987; Payne & Furnham, 1987; Borg, et al., 1991) and 'curriculum demands' (lack of direction and frequent changes in the curriculum) (Laughlin, 1984).

Relationship between the stress factors and demographic variables

A number of the above studies have also investigated the role that selected demographic variables play in the teachers' perceptions of stress factors. Clark (1980), for instance, found that female teachers in grades K-12 in the USA perceived more job-induced stress derived from the factor 'principal-teacher relationships' than did male teachers; a significant difference was also indicated between teachers in grades 7-8 and K-3 in regard to the same factor. Length of teaching experience did not make a significant difference in these teachers' perceptions of occupational stress factors.

Laughlin (1984), moreover, reported that in his sample of Australian primary and secondary schoolteachers, female teachers, young teachers (those under 26), the less experienced teachers, teachers in secondary schools, and teachers who spent the majority of their school time with junior high classes (years 7-10) experienced more stress due to 'pupil recalcitrance' (misbehaviour) than their colleagues. With regard to 'time-resource difficulties' and 'curriculum demands', older teachers and teachers in primary schools reported more stress from these two factors. In addition, male teachers found the latter factor more stressful. Results also showed that teachers in their middle career years experienced more stress owing to professional recognition than the rest of their colleagues.

Significant group differences in respect to the stress factors were also reported by Payne and Furnham (1987) in their study of stress among secondary schoolteachers in the West Indies. Female teachers reported significantly greater stress than their male colleagues in respect to the main factors 'time management' and 'student behaviour'. Payne and Furnham (1987) also found that the least qualified and least experienced teachers reported less stress than others on account of 'time management'. With regard to the factor 'teacher confidence-competence' ('having to teach a subject for which you have not been trained and/or do not feel confident

teaching', 'having to teach an age range for which you have not been trained'), teachers with no qualifications reported the highest stress levels whereas teachers with both a degree and professional training reported the least stress. Moreover, the factor labelled 'professionalism' ('lack of opportunity to experiment with new ideas', 'lack of material resources for teaching') accounted for a higher level of stress for teachers with only a pre-degree teaching certificate than for other teachers, especially for those with degrees.

In a study carried out among Maltese primary schoolteachers, Borg, et al. (1991) found that whereas female teachers compared with their male colleagues reported greater stress due to 'pupil misbehaviour' and 'time-resource difficulties' the converse was true for 'professional recognition needs' (e.g. poor promotion prospects and inadequate salary). Moreover, teachers of above average/average ability classes were more stressed by 'time-resource difficulties' and 'professional recognition needs' than teachers of below average ability classes.

The aim of the present study was to present a model of the dimensional structure underlying the sources of stress for secondary schoolteachers and to determine whether this factor structure is fundamentally different from that reported in the literature. It was hypothesized that the teachers' perception of the level of stress due to these factors would be related to a number of selected demographic variables. Specifically, the objectives of this research were:

- i) to determine the extent to which secondary schoolteachers feel they are experiencing stress;
- ii) to identify the major stress factors;
- iii) to investigate whether the amount and nature of stress due to the major stress factors is related to certain demographic variables (sex, age, type of teaching post, type of school, size of school and type of curriculum subject/s taught).

The present authors believe that the understanding of the nature and dynamics of occupational stress in teaching stands to gain from a research design which incorporates as many of the characteristics of an educational system as reasonably possible. Therefore, in order to investigate the model within a complete, compact context (one which would have all the characteristics of a whole country), it was decided to perform the study in the whole of Malta. The educational system in Malta is similar to that in many English-speaking countries such as the UK, Canada, USA, Australia and New Zealand. It is sufficiently large to represent a whole system but sufficiently self-contained to allow all teachers to be included in the study.

For the purposes of this study, teacher stress is defined as a condition of negative affects (e.g. anger) resulting from aspects of the teacher's job which are perceived by the teacher as a threat to his/her psychological or physical well-being (see Kyriacou & Sutcliffe, 1978b). Therefore, the teacher's subjective appraisal of his/her working environment is here emphasised. This is in line with Lazarus view that threat perception (cognitive appraisal) is the most important determinant of stress (see Lazarus, 1966, chapter 2). Lazarus argued that no objective criteria are sufficient to define a situation as 'stressful'; it is only the experiencing individual that can actually do this. It, therefore, follows that perceptions of stress are highly relative phenomena that can vary from one person to another. It should also be emphasised that the present research design is based on the assumption that teachers can make valid judgments as to the level and source of stress they experience in their job.

Method

Settings

Malta was chosen as a convenient and suitable compact community to use for this study. The advantages that this choice offered were various. For instance, it made it possible to carry out the study in the whole of a country where there are no gross regional, cultural or socio-economic differences which could confound the findings. The major advantage, however, is

the opportunity it offers in terms of the applicability of the findings to educational contexts in other English-speaking countries with which the Maltese educational systems has much in common. Malta is a small Mediterranean nation with a population of approximately one-third of a million. In Malta state (and private) schools are free and schooling is compulsory from 5 to 16 years; pupils start secondary schooling at age 11+. There is one centralized curriculum and English is taught alongside Maltese from the early years. At the secondary level, the principal medium of instruction in most curriculum subjects is English. At the end of the primary years pupils take a selective examination in five curriculum subjects which determines their secondary school placement. Successful pupils are admitted into the 'junior lyceums' (state grammar schools) whereas the remaining pupils go to other secondary schools, commonly referred to as 'area secondary schools'. Both junior lyceums and area secondary schools are single-sex schools. In order to proceed to the 'sixth form' pupils have to obtain GCE '0-level' standard in six subjects, four of which are compulsory for admission (the 'compulsory' subjects are Maltese, English Language, mathematics and physics). In addition, school inspections are carried out by education officers (E.O.s) whose role combines that of advisors and of Her Majesty's Inspectorate, in the U.K.

Subjects and procedure

A questionnaire survey was administered in all the 23 state secondary schools in the Maltese Islands. All the 886 qualified, full-time teachers (including 17 heads of department but excluding headteachers and deputy headteachers) who, when the survey was launched, were carrying out duties in state schools, were invited to participate in the survey. The first author visited each school and after explaining to the headteacher the purpose of the study he/she was requested to distribute the questionnaire in his/her school. A covering letter and a stamped addressed envelope were attached to the questionnaire. Since questionnaires were to be completed anonymously and returned directly to the researcher, the full anonymity of the respondents was assured.

The 157 part-time teachers, casual teachers and instructors who were carrying out teaching duties in state secondary schools were excluded from the study since they were considered to be an atypical group whose responses could potentially confound the results of the study. However, as it was not possible to determine their number in each school it was decided that each school should be given a number of questionnaires concomitant with the number of teachers on its staff. This meant that a total of 1043 questionnaires had to be distributed.

In all, 586 questionnaires were returned of which 31 were completed by part-timers, casuals or instructors and 10 were not sufficiently completed. The remaining 545 questionnaires made up the data set for the present study. This means that 61.5 per cent of the 886 subjects eligible for the study returned a usable questionnaire. Of these, 198 were female teachers and 347 male teachers, making up 64.9 per cent and 59.7 per cent of the male and female teacher population respectively. The mean age of the sample was 40.32 years ($SD = 9.22$) and the average length of teaching experience was 18.29 years ($SD = 10.67$). Since the questionnaire was completely anonymous it was not possible to follow-up the 341 non-respondents (who were eligible to participate).

Instrument

Following a survey of the available instruments devised by several researchers to investigate various aspects of occupational stress in teaching (e.g. Kyriacou & Sutcliffe, 1978a; Pratt, 1978; Clark, 1980; Dewe, 1986), it was decided that, as none of these questionnaires was considered entirely appropriate, a new, improved, instrument would be constructed.

The present questionnaire consisted of eight sections as follows: demographic information, sources of stress, prevalence of teacher stress, job satisfaction, teacher absences, career intention, career commitment and self-image as teacher. Since in the present paper consideration of

responses will be restricted to the first three sections only these sections will be described in detail.

The first section requested demographic information regarding sex, age, length of teaching experience, type of teaching post (i.e. teacher, form teacher, head of department, part-timer casual instructor, other), type of school (i.e. area secondary girls, area secondary boys, junior lyceum girls, junior lyceum boys), school size and type of curriculum subject/s taught. Items requesting information about the respondent's sex, type of teaching post and type of school were multiple-choice questions whereas the remaining demographic information was obtained through open-ended questions.

The second section comprised of a 35-item inventory covering a wide range of sources of stress in teaching. The items were mainly derived from the lists of stressor' items in Kyriacou and Sutcliffe (1978a), Dewe (1986), Payne and Furnham (1987) and Borg et al. (1991). Some of the items were modified for use in the Maltese secondary school context. In fact, the criterion used in the construction of this inventory was that of relevance to the local situation. Teachers were asked to rate the 35 items in response to the question «How great a source of stress are these factors to you?» on a 5-point Likert-type scale labelled 'no stress', 'mild stress', 'moderate stress', 'much stress' and 'extreme stress'. Space was provided for respondents to indicate other sources of stress which they may have experienced. This response scale was scored zero to four.

The third section requested teachers to rate their responses to the question «In general, how stressful do you find being a teacher?» on a five-point scale labelled 'not at all stressful', 'mildly stressful', 'moderately stressful', 'very stressful' and 'extremely stressful'. This one-item measure of self-reported teacher stress has been used successfully by other researchers (e.g. Kyriacou & Sutcliffe, 1978a; Laughlin, 1984; Galloway et al., 1987; Pierce & Molloy, 1990). Responses were scored zero to four.

The questionnaire was pilot-tested on a sample of 40 secondary teachers selected to represent the qualified, full-time teachers in the various teaching posts and from the various types of school in the population. Of the 40 returned questionnaires three were excluded because they were incomplete. The comments of the 37 respondents and some experienced staff from the Faculty of Education (University of Malta) and the Department of Education (Malta) on the form, content and language used indicated that the questionnaire was suitable for use in the Maltese context. Following the recommendations of some of the respondents and academic staff the first section was slightly modified. The category 'other' was added to the item requesting the type of teaching post. This additional category was included to encompass those teachers who apart from teaching duties were also carrying out guidance and librarianship duties. Moreover, an item requesting the approximate size of school was added to the final version of the questionnaire, as described above. Since no changes were made to any of the remaining sections it was decided that the usable questionnaires from the pilot study would be included in the data set of the main study. This brought the total number of usable questionnaires to 545.

Results

Following a consideration of the various demographic subgroups making up the present sample of teachers, the analysis of data will be reported in two stages. In the first stage the major stress factors will be identified using factor analytic techniques. The relationship between selected demographic variables and the identified stress factors will be the concern of the second stage of analysis.

A number of decisions regarding most of the demographic variables was made before the analysis of data was undertaken.

As the age and length of teaching experience of the respondents were highly correlated ($r = .93$) the latter variable was excluded from the analysis. An inspection of the distribution of the ages of the respondents suggested that the sample should be grouped into the following age categories: under 31 years, 31 to 40 years, 41 to 45 years, 46 to 50 years, and 51 to 60 years.

In view of the relatively small number of respondents in the categories 'head of department' and 'other' (13 and 27, respectively), responses regarding the type of teaching post were organised into two categories:

- *teaching post I* (i.e. those teachers who had teaching duties only);
- *teaching post II* (i.e. those who had additional responsibilities apart from teaching duties—this category grouped together form teachers, heads of department, and teachers who performed guidance and librarianship duties).

Responses to the item requesting information about the type of school were organised into two separate variables. The first of these variables (labelled 'type of school selectivity'), consisted of teachers who taught in area secondary schools and in junior lyceums whereas the second variable (labelled 'type of single-sex school') consisted of teachers who taught in boys' schools and in girls' schools. Forty-five teachers who either taught in an area secondary school and in a junior lyceum or who taught in a boys' and in a girls' school were excluded when these variables were introduced in the analysis.

The variable 'size of school population' was divided into three categories: under 501 pupils, 501 to 1000 pupils, and over 1000 pupils. When this variable was introduced in the analysis 79 teachers were excluded either because they taught in two schools and/or because the size of school was not supplied.

With regard to the type of curriculum subject/s taught teachers were grouped into two categories: those who taught one or more of the four 'sixth form' admission compulsory subjects and those who taught all other subjects (i.e. the 'non-compulsory' subjects). Sixty-five teachers who taught subjects from both categories were excluded when this variable was introduced in the analysis. A break-down of the sample by its various demographic characteristics is set out in Table 1.

Table 1
Demographic characteristics of the sample

	<i>N</i>
<i>Total</i>	545
<i>Sex</i>	
Male	347
Female	198
<i>Age</i>	
Under 31 years	104
31 to 40 years	158
41 to 45 years	107
46 to 50 years	103
51 to 60 years	73
<i>Type of teaching post</i>	
Teaching post I	159
Teaching post II	386
<i>Type of school selectivity*</i>	
Area secondary school	246
Junior lyceum	254
<i>Type of single-sex school*</i>	
Boys' school	199
Girls' school	301

Table 1 (cont.)

	N
<i>Size of school</i> +	
Under 501 pupils	120
501 to 1000 pupils	154
Over 1000 pupils	192
<i>Type of curriculum subject's taught</i> ++	
Compulsory subjects	193
Non-compulsory subjects	287

Note. * 45 teachers who taught in more than one school were excluded. + 79 teachers who either taught in more than one school and/or who failed to give this information were excluded. ++ 65 teachers who taught subjects from both categories were excluded.

Analysis of sources of stress

The first stage of analysis explored the structure of the components underlying the 35 listed sources of stress. For this purpose the 35 items were subjected to a principal components analysis. Before this stage of analysis could be carried out, however, a number of stringent criteria were applied to assess the appropriateness of the present data to the factor analysis model (see Norusis, 1988). One of these criteria was that a large sample would be needed for a reliable factor structure (Stevens, 1986; Rust & Golombok, 1989). (This was one of the reasons why, at the outset, it was decided to obtain as large a sample as reasonably possible.) The present ratio of number of respondents to number of items (15.6 to 1) complies with the guidelines set out by various authors (e.g. Kerlinger, 1964; Gorsuch, 1983). Moreover, inspection of the correlation matrix suggested that the items were related to each other and therefore some underlying structure was indeed present. This was supported by Bartlett's test of sphericity (Norusis, 1988) which showed that the hypothesis that the correlation matrix was an identity matrix could be rejected at the .0001 level.

Using Kaiser's (1960) criterion, factors with eigenvalues equal to or greater than one were first extracted. In line with the recommendations of Child (1970) and Rummel (1970) the optimum number of components was then determined by carrying out the scree or discontinuity test. (This was supplemented by an investigation of the factor structure when differing numbers of extracted factors were rotated (Rust & Golombok, 1989).) The first four factors were subsequently rotated using the varimax and method (Rummel, 1970). Items with factor loadings equal to or greater than .4 were used to interpret the factors (Stevens, 1986). In describing the factors, Child's (1960) 'useful tactic' was followed whereby significant loadings (*i.e.* $\geq .4$) were considered in descending order of magnitude to give the 'flavour' of the factor.

The responses of the 545 teachers to the question: «In general, how stressful do you find being a teacher?», scored from zero (not at all stressful) to four (extremely stressful), yielded a mean (general) stress score of 2.15 (*SD* = .92). The distribution of responses, which displayed some negative skew (skewness -.047), is as follows:

- *not at all stressful*, 3.5 per cent;
- *mildly stressful*, 18.7 per cent;
- *moderately stressful*, 44.2 per cent;
- *very stressful*, 27.0 per cent;
- *extremely stressful*, 6.6 per cent.

Clearly, 33.6 per cent of Maltese secondary schoolteachers rated their job as either very or extremely stressful.

Table 2 shows the means and standard deviations of the ratings of the 35 sources of stress (scored from 0 (no stress) to 4 (extreme stress) for the whole sample. The means ranged from 2.66 to 1.12; standard deviations from 1.01 to 1.37. None of the distributions of responses appeared to be bimodal; skewness ranged from -.569 to .891. As is evidenced from their mean ratings, the top five sources of stress as rated by Maltese secondary teachers are:

- pupils who are poorly motivated or not interested,
- lack of, or inadequate, equipment and resources for teaching,
- large classes,
- unrealistic syllabus requirements for the children you teach,
- poor career structure (poor promotion prospects).

Table 2

Sources of stress: means, standard deviations, correlations with self-reported teacher stress and loadings on the first (unrotated) factor

Item n°	Sources of stress	<i>M</i> (<i>N</i> = 545)	<i>SD</i>	Correlation+ with self- reported stress	Loading on first (unrotated) factor
19.	pupils who are poorly motivated or not interested	2.66	1.02	.34	.560
18.	lack of, or inadequate, equipment and resources for teaching	2.56	1.08	.32	.493
34.	large classes	2.39	1.18	.39	.571
3.	unrealistic syllabus requirements for the children you teach	2.39	1.19	.24	.425
7.	poor career structure (poor promotion prospects)	2.32	1.28	.29	.385
17.	too many periods of actual teaching	2.25	1.13	.34	.506
9.	not enough time for marking and lesson preparation during school hours	2.24	1.18	.28	.439
14.	responsibility for pupils' learning	2.24	1.01	.16	.369
10.	covering lessons for absent teachers	2.23	1.32	.22	.420
11.	individual pupils who continually misbehave	2.22	1.23	.30	.631
27.	difficult classes	2.17	1.17	.35	.599
35.	mixed ability classes	2.15	1.19	.39	.557
12.	lack of recognition for good teaching	2.13	1.20	.29	.568
13.	pupils' impolite behaviour or cheek	2.11	1.13	.31	.613
22.	covering the syllabus in the time available	1.97	1.21	.17	.326
32.	poor school organization	1.96	1.27	.28	.570
26.	noisy pupils	1.92	1.12	.30	.618
4.	pupils' non-acceptance of teachers' authority	1.91	1.27	.26	.572
15.	low status of the teaching profession	1.90	1.18	.31	.521
25.	trying to achieve, or uphold, minimal standards and values	1.83	1.03	.33	.533
28.	lack of participation in school decision-making	1.83	1.17	.23	.511
30.	demands on after school time (e.g. marking pupils' work at home)	1.79	1.23	.29	.447
5.	inadequate salary	1.77	1.26	.25	.428
1.	lack of time to spend with individual pupils	1.73	1.03	.10	.121
8.	ill-defined syllabuses (e.g. not detailed enough)	1.70	1.22	.20	.497
21.	noise and other disturbances from neighbouring classes, school playground, or school surroundings	1.61	1.30	.26	.454
23.	punishing pupils (e.g. for misbehaving)	1.47	1.07	.30	.579
33.	lack of support from the headteacher	1.42	1.37	.20	.557
2.	too much paperwork (e.g. filling in forms)	1.42	1.05	.25	.405
29.	attitudes and behaviours of other teachers	1.37	1.09	.16	.506
16.	pressure from parents	1.31	1.03	.29	.501

Table 2 (cont.)

Item n°	Sources of stress	M (N= 545)	SD	Correlation+ with self- reported stress	Loading on first (unrotated) factor
24.	maintaining class discipline	1.30	1.06	.32	.532
31.	lack of support from colleagues	1.19	1.12	.17	.542
20.	pressure from headteacher and education officers	1.14	1.10	.21	.552
6.	lack of friendly atmosphere among staff	1.12	1.07	.12	.502

Note. * 0, no stress; 4, extreme stress. + All correlation coefficients are significant at the .05 level.

A correlation matrix of the 35 sources of stress revealed that of the 595 coefficients 585 were positive. The 10 negative correlations involved the first item ('lack of time to spend with individual pupils'). Moreover, as is shown in Table 2, all the 35 sources of stress were positively and significantly related with self-reported teacher stress (r ranging from .10 to .39; all but two reached the .001 level of significance). This result attests to a reasonably high degree of validity of the single-item measure of self-reported stress.

The 35 sources of stress were subjected to a principal components analysis. As is evident from Table 2, all the 35 items loaded positively on the first unrotated factor; loadings ranging from .121 to .631. The first four factors with eigenvalues 9.00, 3.33, 2.10 and 1.92, respectively, were rotated using a varimax solution. These four factors accounted for 46.7 per cent of the total variance (25.7 per cent, 9.5 per cent, 6.0 per cent and 5.5 per cent, respectively). The 35 sources of stress are set out in Table 3; items which loaded significantly are grouped under the respective factor. Significant factor loadings were defined as those with a value of .4 or greater.

As is evident from Table 3, 30 of the items loaded significantly on only one factor; the remaining five items loaded less than .4 and were, therefore, excluded for factor interpretation purposes (Stevens, 1986).

Table 3

Sources of stress: significant factor loadings* on varimax rotated factors

Item n°	Factor I	Factor II	Factor III	Factor IV
<i>Factor I: Pupil misbehaviour</i>				
11. individual pupils who continually misbehave	.842	—	—	—
26. noisy pupils	.830	—	—	—
13. pupils' impolite behaviour or cheek	.784	—	—	—
27. difficult classes	.757	—	—	—
24. maintaining class discipline	.751	—	—	—
4. pupils' non-acceptance of teachers' authority	.689	—	—	—
23. punishing pupils (e.g. for misbehaving)	.669	—	—	—
19. pupils who are poorly motivated or not interested	.610	—	—	—
25. trying to achieve, or uphold, minimal standards and values	.533	—	—	—
<i>Factor II: Poor working conditions</i>				
5. inadequate salary	—	.786	—	—
7. poor career structure (poor promotion prospects)	—	.730	—	—
15. low status of the teaching profession	—	.666	—	—

Table 3 (cont.)

Item n ^o	Factor I	Factor II	Factor III	Factor IV
<i>Factor II: Poor working conditions</i>				
12. lack of recognition for good teaching	—	.607	—	—
17. too many periods of actual teaching	—	.506	—	—
10. covering lessons for absent teachers	—	.483	—	—
18. lack of, or inadequate, equipment and resources for teaching	—	.482	—	—
8. ill-defined syllabuses (e.g. not detailed enough)	—	.400	—	—
<i>Factor III: Poor staff relations</i>				
31. lack of support from colleagues	—	—	.770	—
33. lack of support from the headteacher	—	—	.737	—
6. lack of friendly atmosphere among staff	—	—	.726	—
29. attitudes and behaviours of other teachers	—	—	.701	—
32. poor school organization	—	—	.691	—
20. pressure from headteacher and education officers	—	—	.540	—
28. lack of participation in school decision-making	—	—	.418	—
<i>Factor IV: Time pressures</i>				
22. covering the syllabus in the time available	—	—	—	.672
9. not enough time for marking and lesson preparation during school hours	—	—	—	.663
30. demands on after school time (e.g. marking pupils' work at home)	—	—	—	.630
1. lack of time to spend with individual pupils	—	—	—	.591
3. unrealistic syllabus requirements for the children you teach	—	—	—	.417
2. too much paperwork (e.g. filling in forms)	—	—	—	.400
<i>Eigenvalues</i>	9.00	3.33	2.10	1.92
<i>Percentage of total variance explained</i>	25.7%	9.5%	6.0%	5.5%
<i>Unloaded items</i>				
14. responsibility for pupils' learning	—	—	—	—
16. pressure from parents	—	—	—	—
21. noise and other disturbances from neighbouring classes, school playground, or school surroundings	—	—	—	—
34. large classes	—	—	—	—
35. mixed ability groups	—	—	—	—

Note. * loadings $\geq .4$

Using Child's (1970) 'useful tactic', factor I was labelled 'pupil misbehaviour', factor II 'poor working conditions', factor III 'poor staff relations', and factor IV 'time pressures'. The internal consistency reliability estimate for each subscale, using Cronbach's coefficient alpha, was .90, .80, .84 and .70, respectively. Coefficient alpha for the whole scale (35 items) and for the 30 items which loaded significantly on the above factors was .91 and .90, respectively. The descriptions of the four factors are as follows.

- 1) *Pupil misbehaviour* groups items dealing with various aspects of indiscipline (disruptive behaviours like rowdiness and cheek) and class management (managing difficult classes, maintaining discipline and dispensing punishment). It also includes problems relating

with teaching children who manifest poor motivation for, or lack of interest in, school learning.

- 2) *Poor working conditions* includes aspects of the teacher's professional development (inadequate salary and poor promotional opportunities), professional recognition (low status of the profession and the low esteem in which the teacher's work is held by education authorities, parents and society), poor facilities and resources to carry out effectively one's work (including inadequate syllabuses) and teaching load.
- 3) *Poor staff relations* brings together items dealing with concerns of social support (lack of support from colleagues, headteacher, and education officers), conflicts with colleagues (lack of friendly atmosphere among staff and the attitudes and behaviours of colleagues) and the organizational structure of the school (poor school organization and lack of participation in decision-making).
- 4) *Time pressures* includes aspects having to do with lack of time to cover the syllabus (especially one which is unrealistic in its requirements in view of the ability of one's pupils) and to give individual attention to pupils. It also includes items dealing with the demands on one's time due to non-teaching activities (marking pupils' work and lesson preparation, and excessive paperwork).

Relationship between the demographic variables and stress factors

As a result of principal components analysis each respondent's 30 scores for the 'sources of stress' items (which loaded significantly) were reduced to four simply by taking the mean score across each of the factors. The second stage of the analyses involved a number of three-way repeated measures analysis of variance with the four extracted factors and two of the demographic variables in turn. Due to the nonorthogonal designs, and following the recommendations of various authors (e.g. Carlson & Timm, 1974; Stevens, 1986; Maxwell & Delaney, 1990), the 'regression approach' for decomposing sums of squares was employed. In addition, as the assumption of homogeneity was not satisfied in five instances (Bartlett-Box F significant at the .05 level) and one of the cell frequencies in the sixth instance was less than 10 subjects (this being the only instance where the large sample size failed to ensure cell frequencies greater than the adopted criterion of 10 subjects), 15 of the possible 21 ANOVAs were carried out. Furthermore, since in all the 15 repeated measures ANOVAs Mauchly's test of sphericity (see Norusis, 1988) was significant at the 0.001 level, the adjusted F -test was used. Here, the degrees of freedom were adjusted using the Greenhouse-Geisser epsilon parameter, thereby yielding a conservative F -test (Winer, 1962).

Table 4

Significant two-way and three-way interactions involving the stress factors (repeated measures ANOVAs)

	<i>N</i>	<i>F</i> -value*	<i>DF</i>	<i>F</i> -value	<i>P</i> -value
Two-way interactions					
Age × Stress factors	545	2.05	11.5	1534.5	< .025
Type of teaching post × Stress factors	500+	4.07	2.9	1438.2	< .05
Type of school selectivity × Stress factors	500+	7.95	2.9	1438.2	< .001
Three-way interactions					
Sex × Type of single-sex school × Stress factors	500+	3.66	2.9	1420.0	< .025
Type of curriculum subject/s taught × Size of school × Stress factors	408++	2.34	5.8	1163.5	< .05

Note. * This is an adjusted F -test whereby the original degrees of freedom are multiplied by the Greenhouse-Geisser epsilon parameter. + 45 teachers who taught in more than one school are not included. ++ 137 teachers who taught compulsory and non-compulsory subjects and/or who taught in more than one school not included.

The results of this stage of analysis showed that the main effect for the stress factors was statistically significant (at the .001 level); indicating that the teachers' perception of the stressfulness of the four factors differed. The most stressful factor was 'working conditions' ($M = 2.11$, $SD = .78$) whereas 'poor staff relations' was the least stressful ($M = 1.43$, $SD = .85$). There was no apparent difference between the levels of stress due to 'pupil misbehaviour' ($M = 1.95$, $SD = .84$) and 'time pressures' ($M = 1.92$, $SD = .73$). The analyses also yielded a number of significant two-way and three-way interactions involving the stress factors, as presented in Table 4. It is clear that all the demographic variables interacted significantly with the stress factors. (In view of the nonorthogonal designs, the considerations of significant two-way interactions that follow are based on unweighted marginal means (Maxwell & Delaney, 1990).

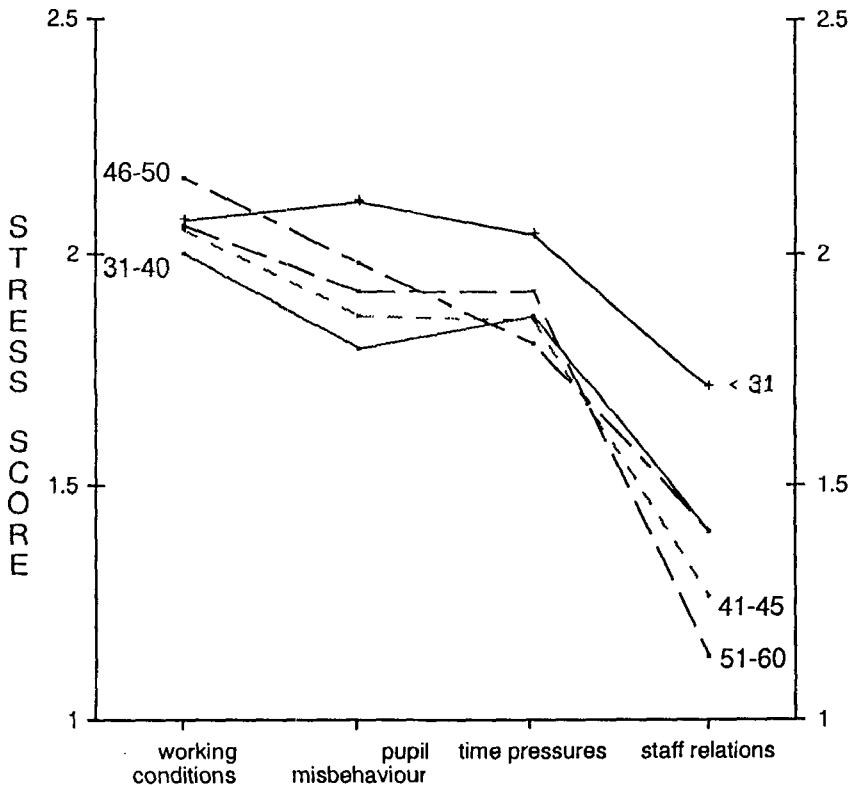


Figure 1. Relationship between age and the stress factors

Age × Stress factors. As can be seen from Figure 1, teachers in the younger age group (under 31 years) reported more stress due to 'pupil misbehaviour' and 'time pressures' than their colleagues in all the other age-groups. With regard to 'poor staff relations', whereas the younger teachers were the most stressed by this factor, the oldest teachers (51-60 years) were the least stressed. When considering the levels of stress due to the four factors within each age-group, it transpires that whereas 'poor working conditions' is clearly the single most stressful factor for the older four age-groups (indeed, as reported above for the whole sample), the first three factors (i.e. 'pupil misbehaviour', 'time pressures' and 'poor working conditions') are the most stressful for teachers in the younger age-group.

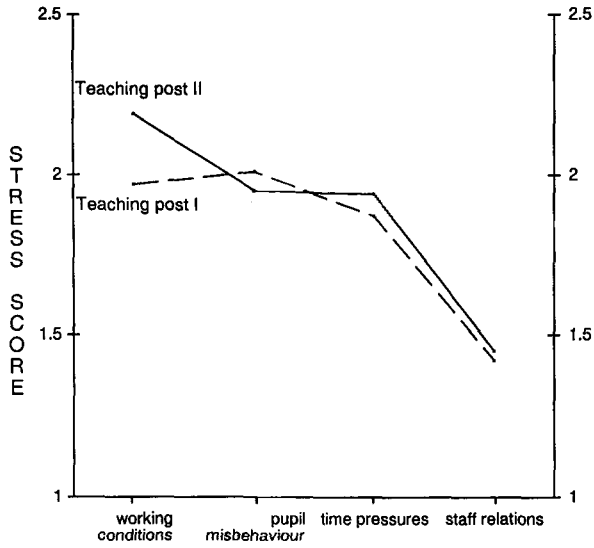


Figure 2. Relationship between type of teaching post and the stress factors

Type of teaching post × Stress factors. Figure 2 shows that teachers who have additional duties apart from teaching duties (teaching post II) reported more stress due to 'poor working conditions' than their colleagues who only carry out teaching duties (teaching post I). Although there appear to be differences in the perceived levels of stress due to the remaining three factors the magnitude of these differences is too small to warrant consideration. When considering the stress due to the four factors within each type of teaching post it should be noted that whereas 'poor working conditions' is the most stressful factor for 'post II' teachers, their colleagues in teaching post I found 'pupil misbehaviour' and 'working conditions' as the most stressful.

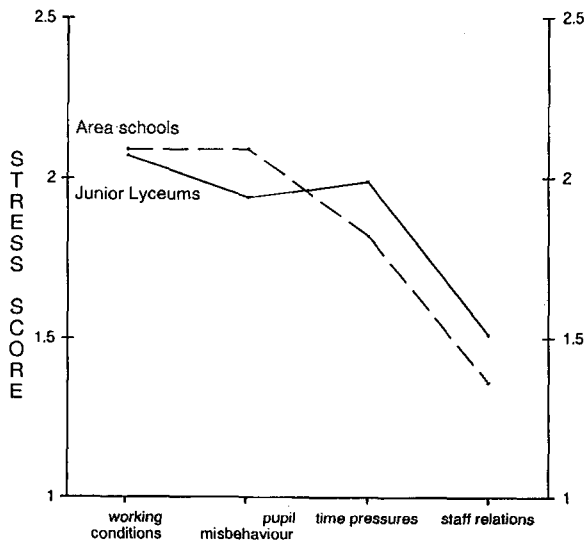


Figure 3. Relationship between type of school selectivity and the stress factors

Type of school selectivity × Stress factors. From Figure 3 it can be seen that teachers in area secondary schools reported greater stress as a result of 'pupil misbehaviour' than their colleagues in junior lyceums. The converse is true for the factors 'time pressures' and 'poor staff relations' — junior lyceum teachers perceived more stress due to these factors than area secondary teachers. The magnitude of the difference in the levels of stress in the two subgroups on account of 'poor working conditions' appears to be too small to suggest any practical significance. A consideration of the stress levels of the factors in each subgroup shows that contrary to the general trend of results teachers in junior lyceums, 'time pressures' and 'pupil misbehaviour' were stressful to more or less the same extent.

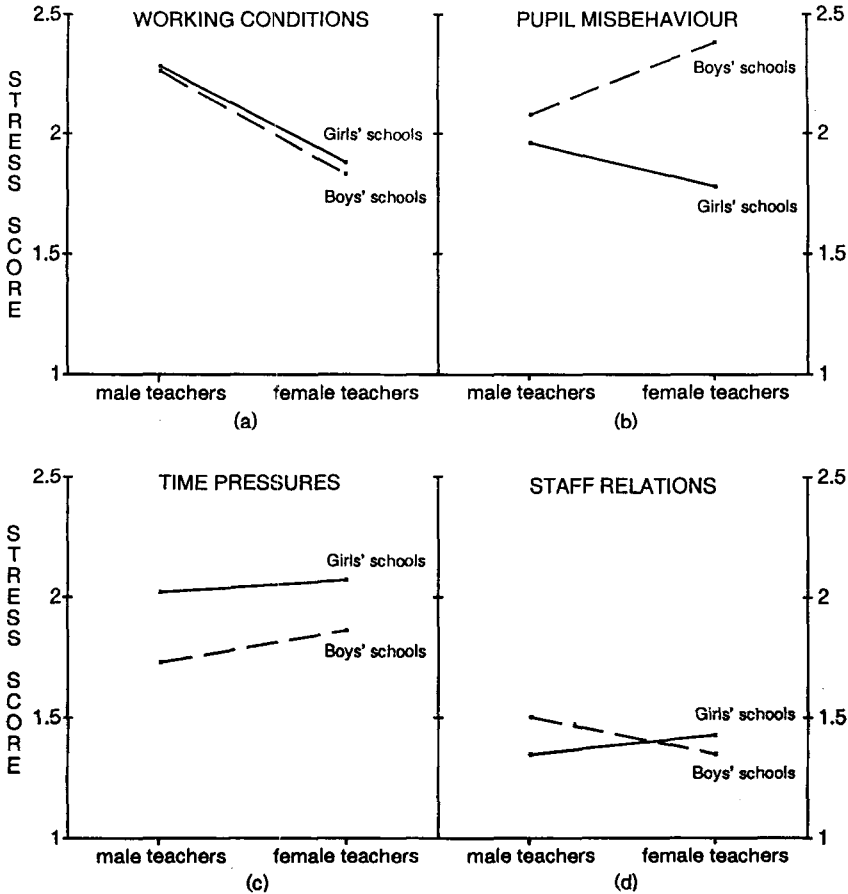


Figure 4. Relationship between type of single-sex school, teacher sex, and the stress factors

Sex × Type of single-sex school × Stress factors. It is evident from Figure 4(a) and 4(c) that for 'working conditions' and 'time pressures' there is essentially an absence of interaction. With regard to 'pupil misbehaviour' (Figure 4 b), male and female teachers in boys' schools were more stressed by this factor than their respective counterparts in girls' schools. Differences are particularly marked for female teacher Figure 4(b) highlights also the greater level of stress as reported by female teachers in boys' schools as compared to male teachers in boys' schools. Conversely, male teachers in girls' schools reported more stress than their female colleagues in girls' schools. With regards to 'staff relations' (Figure 4 d), while male

teachers in boys' schools reported more stress than their counterparts in girls' schools, the converse is true in the female subgroup. The latter difference, however, appears to be too small to warrant further consideration.

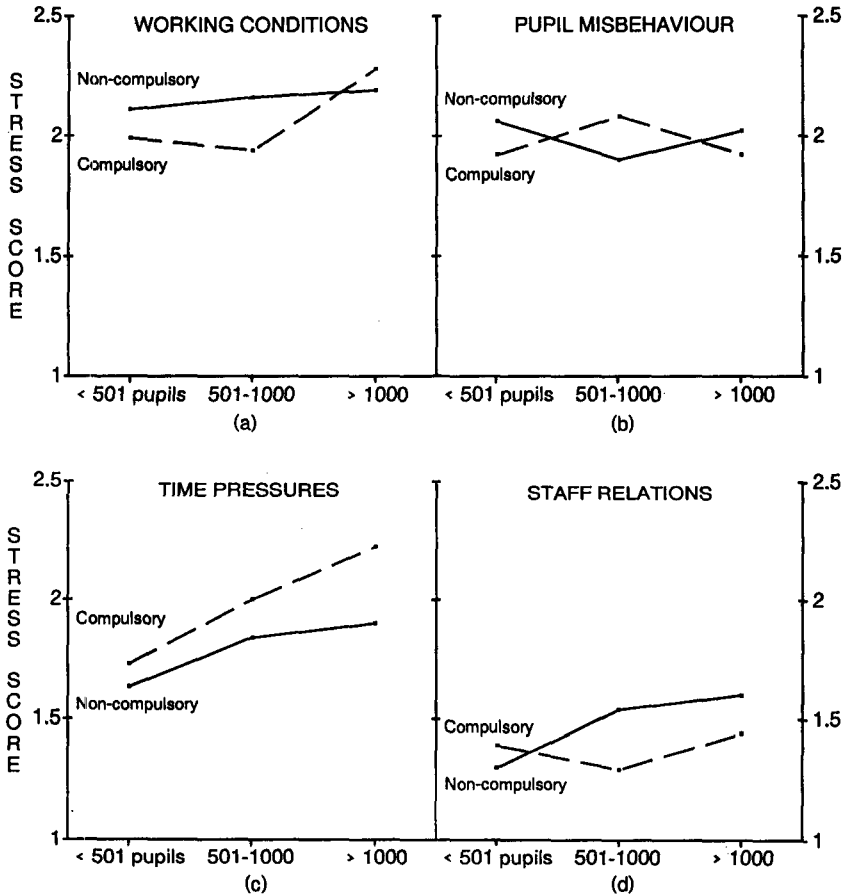


Figure 5. Relationship between type of curriculum subject's taught, size of school and the stress factors

Type of curriculum subject's taught × size of school × Stress factors. From Figure 5(a) it can be seen that teachers of non-compulsory subjects in small schools (under 501 pupils) and in medium-sized schools (501 to 1000 pupils) were more stressed by 'poor working conditions' than their respective colleagues who taught compulsory subjects. Also, teachers of compulsory subjects in large schools (over 1000 pupils) reported more stress due to this factor than their colleagues in small and medium-sized schools. With regard to 'pupil misbehaviour' (Figure 5 b), teachers of non-compulsory subjects in small and large schools were more stressed by this factor than teachers of compulsory subjects. The converse is true for teachers in medium-sized schools. Moreover, from Figure 5(c) it is clear that in both 'curriculum subject/s taught' subgroups the level of stress due to 'time pressures' increases with increasing school size-teachers of compulsory subjects in each of the three 'size of school' subgroups reported more stress than their respective colleagues who taught non-compulsory

subjects. On the other hand, with regard to the reported stress on account of 'poor staff relations' (Figure 5 d), teachers of non-compulsory subjects in large and medium-sized schools were more stressed by this factor than teachers of compulsory subjects.

Discussion

The proportion of Maltese teachers in state secondary schools who reported finding their job very stressful or extremely stressful (i.e. 33.6 per cent) is comparable to the 29.3 per cent of teachers in English comprehensive schools (Kyriacou & Sutcliffe, 1977), the 33.6 per cent of Australian primary and secondary schoolteachers in state schools (Laughlin, 1984), the 34.4 per cent of comprehensive schoolteachers in Wales (Kloska & Ramasut, 1985), and the 32.6 per cent of Maltese primary schoolteachers (Borg et al., 1991). However, it is substantially higher than the 19.9 per cent and 23.4 per cent of comprehensive schoolteachers in England as reported in Kyriacou and Sutcliffe (1978a and 1979, respectively), the 18.4 per cent of teachers in English primary schools (Spooner, 1984) and the 20 per cent of primary and secondary teachers in Australian Catholic schools (Solman & Feld, 1989).

The range of mean ratings of the stressfulness of the 35 sources of stress attests to the wide range of aspects of the teacher's work which the present sample of teachers perceived as stressful to varying degrees. As pointed out above, however, the perceived level of stress due to these sources varies from one teacher to the next on account of, for instance, the teacher's age or whether one teaches in an area secondary or a junior lyceum. Moreover, a comparison of the top five sources of stress for the present sample with those of their colleagues in Maltese primary school (see Borg et al., 1991) shows that there is general agreement by both groups of teachers about the stressfulness of pupils' attitudes to work, and teaching facilities and resources (insofar that both items are ranked among the top five). This result attests both to the common as well as to the diverse aspects of work which teachers in the two settings perceive as being the most stressful.

The present study lends support to the findings reported by other researchers in regard to the complex and multidimensional nature of occupational stress in teaching (e.g. Kyriacou & Sutcliffe, 1978a; Clark, 1980; Laughlin, 1984). A principal components analysis of the sources of stress for Maltese secondary teachers indicated that the underlying structure may be described in terms of 'pupil misbehaviour', 'poor working conditions', 'poor staff relations' and 'time pressures'. This structure is similar to that reported by researchers in different countries indicating that *although there may be differences in the factor structure from one country to another (due primarily to conditions which are typical of a particular context) a number of stress factors are indeed cross-cultural.* 'Pupil misbehaviour' and 'poor working conditions' appear to be two such factors.

The present findings indicate that Maltese secondary schoolteachers found 'poor working conditions' as the most stressful factor. A look at the mean stress ratings of the items which make up this component revealed that with the exception of 'ill-defined syllabuses' all items precede 'inadequate salary' in their level of stressfulness. This is not surprising, in view of the recent substantial increase in teachers' salaries. Borg et al. (1991), who had surveyed Maltese primary schoolteachers before the revised wage-structure, reported a mean stress rating of 2.21 for this item as compared to the 1.77 in the present study. This goes on to show that, in spite of what one may think, a hefty wage-rise is not enough to make teachers happy or less stressed by this aspect. Indeed, it would appear that it is equally important to provide them with the facilities to carry out their job properly, to provide a decent working environment and not to overload them with work.

As hypothesized, and in support of other research studies (e.g. Clark, 1980; Laughlin, 1984; Payne & Furnham, 1987), the present findings show that demographic variables play an important role in the teachers' perception of stress. In addition to other studies, however, the present study may have shed some light on the complex interactions between demographic

variables and the stress factors, indicating that the levels of stress due to these factors may be composed differently for the various teacher subgroups.

The result that the younger teachers (those who are under 31 years old, of which 87.5 per cent had been teaching for 5 years or less) reported more stress due to 'pupil misbehaviour', 'time pressures' and 'poor staff relations' deserve considered attention. The present authors believe that considering that these three factors were essentially equally demanding to the younger teachers it those not suffice to attribute these results merely to inexperience. It would seem that not only do young teachers need to be adequately trained in how to manage and motivate their pupils and organize better their work and time but they equally need the help and support of their colleagues, headteachers and education officers. The early years in teaching are always difficult ones; improved quality of teacher training and an adequate support structure may help to make the job less stressful for in the first years of their career teachers.

When the sample was partitioned in terms of the type of teaching post a marked difference was observed on the factor 'poor working conditions' (with teachers in teaching post II reporting greater stress). An inspection of the mean stress ratings of the sources of stress making up this factor revealed that 'Post II' teachers were particularly more stressed than their colleagues by such aspects as 'inadequate salary', 'covering lessons for absent teachers' and 'too many periods of actual teaching'. It would therefore appear that the additional duties these teachers have to perform make their job more stressful and it seems they feel that the pecuniary benefits they get in return are not commensurate with the responsibilities and the amount of work that these additional duties entail.

As could be expected, differences between junior lyceums and area secondary schools resulted in considerable variation in the teachers' perception of stress due to most of the stress factors. Since almost half of the pupils who sit for the junior lyceum entrance examinations are admitted, it is not surprising that teachers in area secondary schools felt more stressed by 'pupil misbehaviour' than their junior lyceum colleagues. Generally speaking, children in area secondary schools are less motivated and interested in school learning, and more misbehaved. On the other hand, the pace of the school day in junior lyceums tends to be somewhat more hectic due to more pressure to cover the syllabus in time for examinations, the demands of lesson preparation and a heavier load of pupils' work to mark and/or correct. No wonder, therefore, that teachers in junior lyceums reported more stress on account of 'time pressures' than 'pupil misbehaviour'. Moreover, it would seem likely that because of time pressures, junior lyceum teachers were more stressed by lack of social support and the pressure of headteachers and education officers.

The variations in the stress perceptions of teachers in boys' and in girls' schools for 'pupil misbehaviour' highlights some of the difficulties that male and (especially) female teachers in boys' schools have to face. Apart from the important implications that this finding might have on the effectiveness of the disciplinary sanctions available in boys' schools, it also emphasises the need to provide teachers in such schools with an adequate support structure. Results also showed that (irrespective of type of single-sex school) male teachers were more stressed by 'poor working conditions' than their female colleagues. This is consistent with the findings reported by Laughlin (1984), Payne and Furnham (1987) and Borg et al. (1991).

Teachers of compulsory subjects reported more stress due to 'time pressures' than teachers of non-compulsory. This is not surprising given the importance attested to the four compulsory curriculum subjects. What is interesting is that with increasing school size the levels of stress for both groups of teachers increased as well, as did the differences between the two subgroups. There does not seem to be any apparent explanation for this finding. Perhaps with increasing school size, teachers tend to have larger classes with the resultant pressures of more pupil work to mark and more progress reports to complete. It should be noted, however, that the steady increase in stress levels over school size could partially be explained by the tendency for smaller schools to be area secondaries rather than junior lyceums. As such this finding must be treated with some caution.

In the belief that temperamental factors may contribute to the perceived stressfulness of

the identified stress factors tentative investigations of the stress factor patterns in the whole sample and the sex subgroups were carried out. Although these attempts fell short of revealing any consistent pattern, the present authors believe that personality factors may play an important role in the teachers' perception of the stressfulness of the stress factors. As such, investigations into the possible role that personality-related constructs, like an individual's preferred cognitive style, might have on the perceived stressfulness of the stress factors are warranted.

The present study has attempted to present a model for the determinants of stress in teaching within a complete compact context which allows the role of many of the characteristics of an educational system to be investigated. Apart from attesting to the multidimensional nature of stress in teaching (as indeed evidenced by other researches), this study highlighted the complex interactions between the stress factors and the demographic characteristics of the sample.

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Current theme of research:

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- Borg, M. G. (1990). Occupational stress in British educational settings: a review. *Educational Psychology*, 10, 103-126.
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