Macrothink Institute™

Global Journal of Educational Studies
ISSN 2377-3936
2020, Vol. 6, No. 2

Coping Resiliency to Psychophysiological Strain: Interplay Between Health Impairment and Instructional Effectiveness, Job Satisfaction and Attrition of Newly Recruited Teachers

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Received: September 8, 2020 Accepted: November 11, 2020 Published: November 27, 2020

doi:10.5296/gjes.v6i2.17659 URL: https://doi.org/10.5296/gjes.v6i2.17659

Abstract

This paper investigated the correlation between newly recruited teachers coping resiliency to psychophysiological strain and how this affected their instructional effectiveness, job satisfaction and attrition in the context of newly introduced teacher accountability policies in Ghana. Objective was to establish whether or not existing teachers or newly recruited teachers were more vulnerable to attrition due to new policies. Using a descriptive research survey design with empirical statistical data, the following were the major findings: strain experienced by teachers were the result of both mental/psychological and environmental factors; newly recruited male teachers under five years were found to be more vulnerable to strain than females and likely to leave teaching; underlying reason for attrition was more health-related than financial considerations; overstressed teachers were less effective in classroom and less satisfied with jobs. Conclusion of this study is this: contemporary global emphasis on teacher accountability is laudable, nevertheless when overstretched, could also drain younger teachers coping resiliency depriving nations of the dividends they need to accrue from the high investment made in teacher education.

Keywords: Teacher stress, Instructional effectiveness, Job satisfaction, Attrition

1. Introduction

One of the contemporary critical issues in educational sciences is the perceived teacher stress with ramifications in instructional effectiveness, job satisfaction and teacher attrition. It is estimated that about forty six percent (46%) of teachers in a recent survey reported high levels of stress, making teaching profession the lead in occupational stress (Greenberg, Brown, & Abenavoli, 2016).Teacher stress undoubtedly is significantly related to teachers' wellbeing as well as the effectiveness of their classroom interaction (Flook, Goldberg, Pinger, Bonus, & Davidson, 2013). Attention to teacher stress reduction and management, avoidance and reduction of potentially stressful conditions, enhancement of relaxation, etc. precipitate a high level of classroom teacher-student interaction (Beshai, McAlpine, Weare, & Kuyken, 2016).Teachers, just like health professionals continually face occupational demands, and therefore not too difficult to understand why they are overstressed. Teachers do not only teach academic lessons. They have to monitor students' classroom behaviour, keeping eye to help the growth and development of students, coordinating with families and parents, etc. The more the needs of students grow, the higher the demands on teachers. Teacher stress has far more consequences than it is usually perceived. The consequence is not just on the teacher, but most notably everyone around the teacher, especially students. Teaching as a profession for years was not one of the considered stressful occupations (French et al., 1982). Nevertheless, the last three decades have witnessed unprecedented high levels of teacher stress (Greenberg, Brown, & Abenavoli, 2016; Olivier & Venter, 2003). Surveys conducted globally suggest a high level of concern about the effects of stress and teachers wellbeing which are directly related to their readiness or otherwise to remain in the profession, their classroom effectiveness and job satisfaction. Stress reduction as well as reduction of potentially stressful school environment are seen in many research studies as related to teacher classroom effectiveness (Beshai, McAlpine, Weare, & Kuyken, 2016; Flook, et al., 2013; Frank, Reibel, Broderick, Cantrell, & Metz, 2013). Typically, teachers who are able to cope with the demands of stress are perceived to be the ones more equipped in providing care on the Classroom Assessment Scoring System (Flook et al., 2013). Additionally, teachers who are unstressed are more likely to provide positive classroom student achievement, better social and emotional outcomes for much younger students than those overstressed (Schonert-Reichl, 2017).

Stress can influence teachers' job satisfaction (Jepson & Forrest, 2006). In the view of researchers such as Travers (2001), even though there has always been a perception that teaching is a secure job, nevertheless increasingly this perception does not appear to be the case. Rather, within teaching, there has been many instances of change both in terms of the nature of the job and the increasing demands of teacher professionalization, etc. In most cases, what this implies is that it adds to the already high levels of stress which can lead many younger teachers to consider possible retraining and career change. The requirements of contemporary teacher proficiency and competence can precipitate possible dismissal and all these anxieties also contribute to inducing teacher stress and consequent change of career (Richards, 2015). Job satisfaction as used in psychological sense has to do with positive feeling that one has about one's job. This positive feeling is the result of the evaluation of

one's job characteristics (Robbins & Timothy, 2007). Job satisfaction also implies teachers' affective reactions to their work, as well as their teaching role (Skaalvik & Skaalvik 2011). It is in this psychological sense of satisfaction expressed by teachers, which influences both their personal and social behaviors, and in turn their commitment and job satisfaction. It is in this respect that Jepson and Forrest (2006) made the submission that teachers perceived to have a high stress level generally tend to report low satisfaction, as well as much stronger desire to change jobs.

The strain on teachers is also not unrelated to poor professional outcomes such as burnout, attrition, stress and absenteeism (von der Embse, Kilgus, Solomon, Bowler, & Curtiss, 2015; Menken, 2006; Yoon, 2002). In other jurisdictions of educational accountability policies, such as the U.S. for example, where there is a heightened awareness of test-based accountability in performance evaluations, tenure and merit pay etc. can equally increase teacher strain. Studies also suggest that teachers teaching subjects tested at the level of states are tested in a different ways from teachers teaching unexamined subjects. As a result of these varieties in accountability policies from one state to the other, as well as differences in policy implementation at different districts, the level of strain on teachers varies (von der Embse, Pendergast, Segool, Saeki, & Ryan, 2016). In the literature, there has always been a connection between teacher attrition, stress and salary and job dissatisfaction. Darling–Hammond (2010) and Ingersol (2001) make a conservative estimate that in the United States for example, between 40-50 percent of newly recruited teachers within the first five years of employment change jobs. The longer teachers remain in the teaching profession, the better, not only from the perspective of effective school climate and resource allocation, but also the longer teachers teach, the more effective they become. Consequently, when teachers are trained and fail to remain in the profession, this constitutes a mismatch between invested resources and the expected professional output.

1.1 Statement of Problem

The connection between teacher strain factors and teacher attrition has been established (Bowman & Dowling, 2008). Whereas some studies indicate that teachers tend to be more vulnerable to stress at some point in their developmental span, such as demands towards identity stabilization, marriage, child bearing, etc., others typically experience strain and stress as a result of the mismatch between what they were taught while in training, and what is actually on the ground (Huberman, 1993; Huberman, 1995; Ingersoll, 2001). In many jurisdiction such as Ghana, notwithstanding the depth of research on teacher attrition, it is currently not very clear whether or not, it is existing teachers or newly recruited teachers who are vulnerable to attrition, due to the newly introduced licensure and teacher professionalization, as well as the Free Senior High School concept. Most research studies on teacher attrition in Ghana occurred after the 1960's 'education for all' policy after political independence from Britain in 1957, and the 1987 and 2007 Educational reforms. It is important to reconsider the subject within the context of the current shifts in educational policies, such as the new basic school curriculum, and the Free Senior Highs School education in Ghana. For example, it would be significant to know, if given the Teacher Trainee Allowances in the Colleges of Education, teachers especially newly recruited, leave

the profession after the mandatory period of service, denying the State from realizing the dividends of teachers, in a situation of perennial mismatch between teacher supply and demand in Africa and Ghana in particular. Secondly, currently in many nations across the globe, teaching is no longer an option for those wanting to use it as a stepping stone towards other more lucrative jobs. The testing stakes for teachers continue to be higher, given the global pressure for teachers to increase and enhance students test performance (Valli & Buese, 2007), predicting more stress and strain (Berryhill et al., 2009). In the last decade for example, not many studies have been conducted to examine specifically, how test-based accountability reforms across the globe influence teacher outcomes- teacher evaluations, pay decisions and tenure in many emerging economies. Thirdly, based on these mentioned teacher outcomes, the need to investigate the connection between accountability policies and teacher attrition, which is not only a significant revenue loss, but more so fiscal liability for many schools (Darling-Hammond, 2010) is significant. Consequent on these factors, this current study intends to add to the existing literature on the subject, but above all, to address contemporary issues of newly recruited teachers coping resiliency to psychophysiological strain and health impairment in the context of their instructional effectiveness, job satisfaction and attrition that have not been addressed in this study area, especially the unique impact of contemporary teacher accountability pressure and attrition.

1.2 Research Questions

The following were the key questions that this paper attempted to find some answers:

1) In what sense do contemporary policies of accountability such as teacher licensure and large student testing precipitate teacher strain and burn out?

2) How do these accountability policies and high-stakes testing implicate teacher classroom effectiveness, job satisfaction and attrition?

3) Does the number of years taught by teachers predict teacher attrition and job satisfaction?

4) How does school climate mediate or guard against teacher strain and stress?

1.3 Significance of the Study

Whether or not an educational endeavour in any country will succeed is directly related to the teacher who is at the heart of the educational system. It is in view of this that across the globe, but more especially in the emerging economies, governments spend a large chunk of their budget into education especially pre-tertiary teacher emoluments and training. Therefore, policy issues relating to teacher training education, deployment as well as emoluments understandably should be of concern to all stakeholders, since teachers are the number one in-school influence on students' performance. Global data indicate that education financing for example in the developing countries since the first decade of this 21st century is largely the result of development assistance. In the first decade of this century, there was an increase in financial flows for the period 2002-2013, more than double in real terms across all educational levels. Then between 2010 -2013, funding specifically for basic education declined, but that of secondary and post-secondary education remained comparatively

constant, while in 2012, low-income economies received more than 20% increase in basic education assistance (Steer L. & K. Smith 2015). In Ghana for example, given the fact that so much goes into education, and the teacher constitutes the nucleus of this enterprise, coupled with the consistent mismatch since political independence between teacher supply and demand, the government continues to commit itself to ensure there are enough motivational packages to attract new people into the teaching profession and to avoid attrition. With all these as background, this study is significant for the following reasons. First, there is the need to find out, if there is a correlation between teacher investment and teacher dividends. Second, it is justifiable to find out whether or not current changes in teacher recruitment policies, teacher accountability, the free Senior High School system with its concomitant high-stakes in classroom students numbers and students evaluation, etc., have any connection with teacher strain and stress factors, their related teacher classroom effectiveness, job satisfaction and attrition. Third, the findings of this study would be of immense benefit to all education stakeholders such as the Ghana Ministry of Education, the Ghana Education Service, the various teacher bargaining groups, parents and teacher education students. Fourth, the findings would constitute valuable source for the National Teachers Council in terms of teacher policy formulation, etc. in addressing early teacher attrition in a country with high teacher shortage crisis such as Ghana. Fifth, global research findings suggest high rates of teacher turnover impact negatively on student achievement. This is because in schools of high-turnover, underqualified and untrained teachers may have to be hired to fill the gaps. These five reasons underscore the significance of this study.

2. Theoretical/Conceptual framework

2.1 Towards a Definition of Teacher Stress/Strain Factors: The Transactional Model

Teacher stress and strain factors are used interchangeably in this paper. Theoretically, there appears to be two main psychological perspectives on teacher stress. One perceives stress as external factor, for example, a discontent or poor working conditions. This external factor of discontent or poor working conditions cause an action (poor working conditions) and a reaction (feeling of discontent). It is within this context of action and reaction, that teacher stress has been defined as teachers' experience of unpleasant situations or conditions, which induce negative emotions, such as tension and anger resulting from some aspects of their work (Kyriacou, 2001; Rudow, 1999). The other dimension also perceives teacher stress as internal and inner directed. It is within the individual as internally they interpret, and give meaning to their mental interpretations around them (Gold & Roth, 1993). This interaction between external factors and internal factors underscores the transactional model of stress proposed in the theoretical framework of Folkman (2013) and Lazarus and Folkman (1987). In this theoretical model, stress is the result of an interaction as well as an appraisal mechanism between an individual and his/her environment. In a similar way, many researchers have conceptualized stress as the degree of mismatch between demands on individuals and their coping resiliency (Bakker & Demerouti, 2007; McCarthy, Lambert, Lineback, Fitchett, & Baddouh, 2015). As used in this paper, teacher stress has two subcategories: a) stress causes and b) stress responses. The former has to do with the totality of all aspects of work content, as well as the context or situation within the work, which has a tendency to influence teachers at

three levels: cognition, motivation and emotions. Stress responses on the other hand, constitute those responses which come from the mental interpretation of the individual as he/she goes through these experiences (Van Veldhoven, 1996).

This job-demand resources model constitute a useful framework for understanding the psychological interplay between the four important variables between stress cause, stress responses, teaching outcome, and job satisfaction in teaching and teacher attrition. The model amply demonstrates the correlation between work (teaching) characteristics, teacher well-being as well as organizational outcomes, especially in the context of two main psychological processes: a) health impairment issues with focus on the link between the demands of job, job resources, stress and strain factors, and outcomes in the organization; b) motivational issues: the assumption that job resources have high motivational potential, and therefore can precipitate a high level work engagement, minimizing low cynicisms and ensuring high stake and excellent performance. Job demands that could be perceived by the individual as unpleasant situation (and therefore external stressor) could be described as all the physical, psychological, organizational as well as social dimensions of work, that would require sustained physical and psychological efforts (Bakker & Demerouti, 2007). Specifically in teaching situations, it could be any of the following: students' misbehavior, large class size and continuous assessment, etc. De facto, these demands are not necessarily negative. They become negative when they function as causes of stress, when meeting these demands requiring effort from an employee, recovering from similar earlier demands. This can trigger job dissatisfaction and attrition. The model again hypothesizes that, high job demands are not unrelated to exacerbating employees' resources, both mentally as well as physically. Bakker and Demerouti (2007) offer examples of psychological strain such as, job-related anxiety, exhaustion as well as dissatisfaction. In this context, psychological strain is directly related to stress responses tension, negative emotions and discontent. Psychological strain induces negative organizational outcomes that are manifested in poor performance, absenteeism and problems associated to health (Bakker, Demerouti, & Sanz-Vergel, 2014).

2.2 Teacher Stress/Strain Factors and Classroom Effectiveness

Theoretically, the link between teacher stress factors and classroom effectiveness could be explained in the framework of the theories of Rotter (1966) and Bandura (1977). The theory of internal locus of control by Rotter (1966) cited in Goddard, Hoy and Woolfolk Hoy (2000), offers the basis for teacher self-efficacy, especially in the area of control of reinforcement. Asking the question whether or not reinforcement was within the teacher or in the environment, findings suggest motivation and performance constitute the bedrock of teachers' reinforcement, and by implication contribute to higher teacher effectiveness. Bandura's (1977) theory also offers another conceptual framework for self-efficacy. It is the 'the outcomes of cognitive process in which people construct beliefs about their capacity to perform at a given level of competence" (p. 480) to explain people's beliefs and how these believes affect their performance. Bandura (1977) suggests the inextricable link between peoples' beliefs, and how these beliefs (attributions) could influence their efforts, particularly their flexibility or otherwise in coping with anxiety/stress. Making specific reference to teachers, Bandura (1977) suggested that, there were two types of teacher efficacy: a) personal

teaching efficacy, and b) professional teaching efficacy. The former refers to personal/individual accountability. For example, how a teacher acknowledges the learning of a student. The latter is the teacher's conviction that he/she as a professional possesses the capability to influence what Wheatley refers to this as 'external factors' (cited in Cheung, 2008). Gibson and Dembo (1984) made conclusions on the theories of Rotter (1966) and Bandura (1977), and found that teacher efficacy consists of teaching efficacy, general teaching efficacy and personal teaching efficacy (Cheung, 2008).

Irrespective of teachers locus of control of reinforcement (whether internal or external) as theorized by Rotter (1966), or teachers attribution of cognitive factors as conceptualized by Bandura (1977), excessive stress either within the individual or from the organizational environment (school climate) can exacerbate psycho-physiological health problems that can undermine teachers classroom effectiveness to perform at the highest levels (Chan, 1998). Effects of stress include the following psycho-physiological problems: palpitations, redirection of blood flow away from digestion, hands/feet, and reproductive organs to the brain and major muscles, release of stress hormones such as cortisol and adrenalin, etc. (Guglielmi & Tatrow, 1998). Additionally, stress also precipitates the following: tension headaches, neck/back/shoulder pain, tight jaw, sleeping problems, fatigue, loss of concentration, migraine headaches, poor circulation, Raynaud Syndrome, high blood pressure, sexual dysfunction (in either sex), digestive problems, upset stomach, ulcers, colitis, hormone imbalances, reduction of immune system function, over reaction by immune system (allergies or autoimmune diseases worse), increased asthma activity, increased aging rate, anxiety, depression, substance abuse, poor habit control, over-eating, low energy, prone to accidents or mistakes, can impair communication, poor performance, among others are effects characteristics of stress (Guglielmi & Atrow, 1998). All these do not only influence the health of the teacher but the ability to be effective.

2.3 Teacher Stress and Job satisfaction

Work stress, also referred to as occupational stress occurs when there is a mismatch between workload demands at the work place and the individual (Tsutsumi, Nagami, Yoshikawa & Kogi, 2009). It is the experience of negative emotional states such as depression due to work, worry, anxiety, frustration and other related factors (Kyriacou, 2001). Among the helping professions, teacher stress for the last four years has been the subject of study, and teachers across the globe have been perceived to be under increase stress (Antoniou, Polychroni, & Vlachakis, 2006), influencing decisions whether or not most teachers would stay or leave the profession. Among the factors influencing teacher occupational stress include, environmental organizational stressors such as excessive workload, administration, large class size, role ambiguity and conflict, ever increasing pressures of teachers' role, little recognition and low remuneration, poor working conditions, lack of involvement in decision-making, student rebellion as well as many other emotional demands of teaching (Brown & Ralph, 1992; Cooper & Kelly, 1993). Many scientific studies have been conducted on the relationship between occupational stress and job satisfaction as well as other factors such as intention to leave the teaching profession from many angles (De Nobile, 2005; Abdulkadir 2013) and from different jurisdictions. For example, high occupational stress has been found to be

linked directly to poor teacher performance, absenteeism and thoughts of leaving the job (Kyriacou, Kunc, Stephens, & Hultgren, 2003). Specifically on occupational stress and job satisfaction, research conducted by Johnson and Holdaway (1994), findings showed that job facets for satisfaction were urgently needed. Similarly, De Nobile and McCormick (2005) study found the following four dominant stress factors (information domain, personal domain, student domain, and school domain) as determinants of job satisfaction. On the other hand, negative correlations were noticed between job satisfaction and work stress.

2.4 Teacher Stress and Attrition

Historically teaching as a profession has been linked to stress in many jurisdictions that put premium on test-based accountability such as the United States. In other fragile economies especially in Africa, teaching was not perceived to be stressful until recently with emphasis on education for all. Changes in educational policies with focus on teacher accountability has shifted the focus on the causes of attrition from such issues as low remuneration, low recognition more to human capital accumulation, stress and burn out. For example, Guarino et al. (2006) emphasize the point that teachers are likely to quit the profession after acquiring higher degree in more lucrative areas, such the banking and finance sector. Teachers who acquire degrees that are not of high market value choose to stay in the profession. Contemporary research findings however suggest that, the leading predicting factor in teacher attrition, is essentially related to performance evaluations, merit pay as well as tenure decisions. Recent research suggests that, the use of test-based accountability in performance evaluations, merit pay, and tenure decisions result in increased test-related stress in the environment, increased stress related to the teaching curriculum, and increased teacher stress in general and specific to testing (von der Embse et al., 2016). All these have contributed to recent teacher stress and hence attrition. In Ghana, teacher attrition has been attributed over the years to low remuneration, poor conditions of service, etc. For example, Sam, Effah and Osei-Owusu (2014) highlight the following factors as compelling enough for teachers to leave the profession: low salaries, poor conditions of service, low status (prestige) for the teaching profession, and the lack of incentives associated with the job. Similarly, Cobbold (2015) makes the submission that teachers in Ghanaian public schools are likely to leave teaching because they are not content with remuneration. However, with changes in educational policies such as teacher licensure examinations, increased class size due to the Free Senior High School policy with the consequent double stream, teachers especially at the Senior High School level are likely to experience high stress that could predict teacher attrition.

3. Methodology

3.1 Sample and Design

This study used the descriptive research survey design with an estimated sample size of three hundred (300) stratified purposive sampling comprising two hundred (200) newly recruited Senior Highs School teachers for the last five years (2015-2020), twenty (20) headmasters of some selected schools, twenty (20) circuit supervisors from selected Districts Education offices and sixty (60) randomly selected Senior High school students as respondents. All were

sampled from five (5) administrative regions of Ghana. The selected regions were: Ashanti, (60 respondents), Ahafo, (60), Bono (60), Bono West (60) and the Greater Accra (60). Respondents were randomly selected from the five regions: No one was forced against his or her will to participate in the study. When permissions were granted, respondents were given a survey pack with the consent form and questionnaires and the Perceived Stress Scale (PSS). In terms of gender, three quarters of the respondents were males and one-third was females.

3.2 Measuring Instruments

Two (2) instruments were used to gather data namely: a) the Perceived Stress Scale (PSS). The PSS is a self-report measure of perceived stress (Cohen, 1983). It consists of a 10-item questionnaire. Participants are asked to score each item on a scale from 0-4 such as 'never' to 'very often' respectively. Each item begins as follows: "In the last month, how often have you..." For example, "In the last month, how often have you dealt successfully with irritating life hassles in school?" Another question asked, "In the last month, how often have you realized that you could not cope with all the things that you had to do?" Scores are then summed up in order to identify perceived stress score. Scores range from 0 to 40. High scores are within the range of 27 to 40; moderate stress scores range from 14-26; low stress scores range from 0-13. The reliability for the PSS was .84, .85, and .86 for each of the samples (Cohen, 1983). It is a classic stress assessment instrument commonly used in mindfulness related stress research. The second instrument used for data gathering was a self-structured questionnaire which sought to gauge the perspectives of respondents on the four research questions. Both the responses to the questionnaires and that of the Perceived Stress Scale (PSS) were screened and the responses coded. Positive item were coded Strongly agree – 4, Agree – 3, Disagree – 2, and Strongly Disagree – 1. Responses were entered into SPSS version 20 and were inferentially analysed through regression analysis to model the teachers' instructional effectiveness, job satisfaction and attrition based on their strain and burn out. Structured questionnaires were also used fin addition to the PSS. The questionnaire was divided into sections that measured different variables such as a) biodata of respondents: age, academic qualification (Diploma in Basic Education, Bachelor of Education, M.Phil./M.Ed.; M.Sc., M.A), academic/administrative rank, years in the teaching profession or years working in the Ghana Education Service; b) Using a ranking scale, other section of questionnaire measured respondents perception of each of the four research questions that guided this study. For example, in the first research question, how contemporary teacher accountability induces teacher strain and burn out, respondents were asked to indicate on the Perceived Stress Scale (PSS) in terms of range how the two variables of accountability and burn out were correlated.

4. Results

Research Question 1: In what sense do contemporary policies of accountability such as teacher licensure, large class sizes and large student testing precipitate teacher strain and burn out? This question examined the correlation between newly recruited teachers' perception of teacher accountability such as the newly introduced licensure, large class and large student testing due to the Free SHS concept and how these induce strain and bun out. Having coded

the responses to answer this, simple regression was used as means to model how contemporary polices of accountability precipitate teacher strain and burn out. A summary of the linear regression analysis is shown below in Table 1.

Table 1. Model summary of the linear regression analysis

R	R Square	Adjusted R Square	Std. Error
.495	.255	.236	7.605

The 'R' value in Table 1 shows the degree of correlation between the independent (predictor) variable and the dependent (criterion) variable. The table shows that there is a positive and moderate correlation (r=0.49) between policies of teacher accountability especially teacher licensure, large class sizes, large student testing students and strain and burn out and thus moderately predicting teachers stress. The 'R' square value is the square of R which is the coefficient of determination, indicating how much of the variability in the dependent variable could be explained by the independent variable. In other words, how much of the strain and burn out is explained by the stress of large classes, and large student testing. The Table above suggests that about 25 percent of the variability in teacher stress and burn out could be explained by the independent variable. The adjusted R-square is insignificant in this model because of the fact that the predictor variable here was only one. It is only considered for more than one predictor variables because it brings some modification to the R- square in order to obtain realistic indication of the predictive power. Thus the values of the independent variables coefficient and the estimate of the linear regression is found the Table 2 below:

Table 2. Coefficient of the linear regression model

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
Constant	12.739	4.056		3.770	.000
Contemporary Policies Score	.310	.045	.580	9.024	.000

Table 2 above indicates the coefficients needed for the model building. They are shown under the letter marked 'B' found underneath the 'Unstandardized Coefficients'. The constant value of 12.74 constitutes teachers estimated performance score, when they are found not to have any identified strain and burn-out and therefore is equivalent to 0. On the other hand, the co-efficient value of 0.31 shows the slope of the independent variable (that is contemporary policies) which indicates the average increase in teacher performance as soon as there is a unit increase in these contemporary policies. Hence, the estimated regression is as follows: teacher performance score= 12.74+ 0.31 multiplied by contemporary policies, which is

y=12.74 +0.31*x* +e, where *y* is the dependent variable teacher stress and burn out, *x* the independent variable of contemporary policies and *e* the error in teacher stress and burn-out. Having obtained this equation between the variables, the next step was how to determine the extent of the significance of the independent variable using ANOVA test of significance in Table 3 below:

Table 3. NOVA test of significance of the predictor variable

	Sum of Squares	Df	Mean Square	F	Significance
Regression	4730.092	1	4720.092	81.595	.000
Residual	14921.792	257	57.940		
Total	19641.975	258			

The ANOVA test of significance of the Predictor variable was conducted at 5% significance level. Result from Table 3 shows that the predictor variable was significant considering the F-ratio of 81.60 with $p < 0.05$. Thus contemporary policies in teaching has significant contribution to their strain and burn-out.

Research Question 2: How do these accountability policies and high-stakes testing implicate teacher classroom effectiveness, job satisfaction and attrition? This second question sought to examine the relationship if any between accountability policies and high stakes testing on one hand and classroom effectiveness, job satisfaction and attrition on the other.

Table 4**.** Univariate regression analysis of teachers using Accountability Policies and High-stakes Factors as Predictors

Measures	Classroom Effectiveness		Job Satisfaction		Attrition	
	DR^2	Beta	DR^2	Beta	DR^2	Beta
Sex	0.013	0.101	0.049**	0.212**	0.010	0.084
Years in Teaching	0.013	0.08	0.002	0.01	0.021*	0.11
Accountability policies	0.047**	0.224**	0.044**	0.216**	0.050**	0.232**
High –stakes Factors	0.000	0.020	0.006	0.076	0.009	0.094

Note. *p < 0.05. **p < 0.01.

Research Question 3: Does the number of years taught by teachers predict teacher attrition and job satisfaction? The third question examined the how length of years in teaching predicted possible attrition and job satisfaction. Using MANOVA analysis, we also tried to determine whether or not gender differences also existed in the variables. Preliminary test was conducted to check for normality, homogeneity of variance-covariance matrices, normality, linearity, multi collinearity as well as normality. Results are presented in Table 5 below:

Table 5. Respondents Scores on number of years taught and attrition and job satisfaction

Dependent Variables	Males		Females				Between	Subject-Effect
	Mean	SD	Mean	SD	Dff	M Sq	*F*-value	*p*-value
Number of Years	80.72	12.48	70.05	13.86	1	4623.83	28.25	.000*
Attrition and Job Satisfaction	39.89	8.29	35.30	8.34	1	240.49	3.10	.075

Research Question 4**.** How does school climate mediate or guard against teacher strain and stress.

Table 6. Descriptive

School climate and Teacher Stress	N	Mean	Standard deviation
Teachers	200	22.05	0.
Headmasters & Circuit Supervisors	40	14.89	0.311
Students	60	11.51	1.456

Table 7. Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
31.294	2	216	.000

Table 8. One-Way analysis of variance on the means

Robust Tests of Equality of Means				
	Statistic	df1	df2	Sig.
Welch	1.507	2	87.923	.000

5. Discussion

Physiological strain is the experience of undesirable conditions precipitating negative emotions which in turn induce psychophysiological reactions which are both internal as well as external. Internally, individual teachers' interpret and give meaning to their mental interpretations of events they encounter. From the perspective of the transactional model which this paper examined, teacher strain and burn out as per the findings of this study suggest that strain and burn-out often experienced by teachers is essentially the result of both interaction as well as the mental/psychological mechanism between the teacher and his/her environment. By and large the findings as shown in the results above are consistent with Folkman (2013) and Lazarus and

Folkman's (1987) theoretical models as well as that of Gold and Roth, 1993. Teacher strain and burn out, experienced by newly recruited teachers as evidenced by the findings of this study is suggestive that, newly recruited male teachers are more likely to leave the teaching profession within the first five years of recruitment, compared to their female counterparts. This shows that for male teachers especially, there is a much higher degree of a mismatch between demands on them and their coping resiliency as indicated for example in Table 5 on respondents scores on number of years taught and attrition and job satisfaction. This finding is consistent with the empirical findings of Bakke and Demerouti (2007); McCarthy, Lambert, Lineback, Fitchett, and Baddouh (2015). This is especially so within the context of new demands, such as test-based teacher accountability (the Teacher Licensure Examination) in addition to certification from the Universities and Colleges of Education in the study area. This, combined with large class size, periodic monitoring of students' academic progression (continuous assessment), and increased stress related to the teaching curriculum, etc., especially with the introduction of the Free Senior High School exacerbate heightened teacher strain and thereby confirming von der Embse et al. (2016).

Undoubtedly, high level of occupational stress compounded by the new demands on the teacher as corroborated by the findings of this study is directly linked to poor teacher performance and less job satisfaction as well as thoughts of leaving the job (cf. Table 4). This is because teacher occupational stress regardless of the locus of control of reinforcement, whether internal from the individual or external from the environment as conceived by Rotter (1966) or attribution of mental/cognitive (Bandura, 1977) was found in this study to be a leading cause precipitating psychophysiological problems of younger teachers especially male teachers: palpitations, release of stress hormones (cortisol and adrenalin) increasing perspiration and reducing immune system responses (Guglielmi & Tatrow, 1998) etc. All these from the responses of respondents were found to undermine younger teachers coping resiliency leading to underperformance and the thoughts of leaving teaching. This is consistent with other empirical findings that high occupational stress has been found to be directly linked to poor teacher performance, absenteeism and thoughts of leaving the job (Kyriacou, Kunc, Stephens, & Hultgren, 2003; Holdaway, 1994; De Nobile & McCormick 2005).

Thus the fundamental point suggestive of the findings of this study with respect to the underlying causes of teacher attrition for newly recruited teachers seems to be that in the last five years in Ghana (2015-2020), thoughts of leaving teaching appears to have significantly shifted from salary and status-based issues such as low remuneration, low recognition, etc. found in most Ghanaian research study (Sam, Effah & Osei-Owusu, 2014; Cobbold, 2015). Rather, the underlying causes likely to trigger younger teachers' attrition from teaching appear to be more related to health impairment due to stress and its impact on both mental as well as teachers' physical health. Hence, contemporary changes in educational policies: teacher licensure examinations, increased class size; Free Senior High School policy with the consequent double stream, etc., teachers especially at the Senior High School level are likely to experience high stress that could predict not only their attrition but their underperformance. Even though financial considerations and status such as enhanced salary and teacher

recognition could not be discounted, the leading predictor for teacher attrition for younger recruited teachers was found to be teacher occupational stress, with health issues which included the following: environmental organizational stressors such as excessive workload, administration, large class size, role ambiguity and conflict, ever increasing pressures of teachers' role in the last four years confirming the findings of Antoniou, Polychroni, and Vlachakis (2006); De Nobile, 2005; and Abdulkadir (2013).

As shown in Table 5, the number of years taught also implicated teacher attrition. Those who have taught for more than ten (10) years were less likely to leave teaching, compared to those under five years. A one-way between-groups multivariate analysis of variance was performed separately to test number of years, attrition and job satisfaction. There was a significant statistical difference found between teachers who have taught for ten years and above and those taught for 5 years and below on the combined dependent variables: $F(2, 258) = 14.92$, $p = .000$; Wilks' Lambda = .90; partial eta squared = .10 .Considering separately the results for the dependent variables, using Bonferroni adjusted alpha level of 0.25 to reach statistical significance were scores on the number of years taught. The mean scores indicated that males reported high level on years (M=80.72; 12.48) than females (70.05; 13.86), implying that male teachers were more influenced by number of years taught than female. Most of these males had taught less than five years, and found to be psychologically overstretched. This confirms international research evidence that suggests that contemporary lead factor for teacher attrition has more to do with dissatisfying working environment than with salaries being only a minor source of dissatisfaction (Borman & Dowling, 2008; Ingersoll & Smith, 2004; Tema, 2010).

The statistics in Tables 6, 7 and 8 clearly show that significantly school climate is certainly an important mediator regarding the relationships between accountability pressures, stress, and attrition and teacher migration. A positive school climate with cordial and affective relationships between heads, teachers and students mitigate against more stress among teachers. On the other hand, negative school climate typically exacerbates burn out and stress and the probability of teachers of newly recruited the likelihood of leaving. This finding in the study also confirms Scwab, (2001); Collie, Shapka, and Perry (2012), especially teacher-student relationships and also corroborates Beshai, McAlpine, Weare, and Kuyken (2016); Flook et al. (2013); Frank, Reibel, Broderick, Cantrell, and Metz (2013), that reduction of potentially stressful school environment are seen in many research studies as related to teacher classroom effectiveness. Additionally, teachers who are unstressed are more likely to provide positive classroom student achievement, better social and emotional outcomes for much younger students than those overstressed by the school environment (Schonert-Reichl, 2017).

6. Conclusion

This study examined the correlation between teacher coping resiliency and psychophysiological responses to instructional effectiveness, job satisfaction and attrition of newly recruited teachers.

Even though the connection between teacher strain factors and teacher attrition has been

established in many jurisdiction, it was still not very clear in the study area, whether or not it is existing teachers or newly recruited teachers who are vulnerable to attrition due to the newly introduced polices on high stakes teacher accountability, licensure examinations, and teacher professionalization as well as the Free Senior High School concept with large class size. Using a descriptive research survey design with empirical statistical data, the following were the major findings of this study: strain and burn out experienced by teachers were the result of both mental/psychological as well as environmental factors; newly recruited male teachers under five years were found to be more vulnerable to stain and burn out than females and therefore likely to leave teaching; the underlying reason for attrition was seen to be more health-related than financial considerations; overstressed teachers were found to be less effective in classroom and less satisfied with jobs. Based on the above findings, the major conclusion of this study is this: even though encouraged by contemporary global emphasis on teacher accountability to ensure that educational access matches with learning outcomes, and therefore the need to raise the stakes for teachers, stakeholders also need to be mindful that this can also drain teachers ability to cope with psychophysiological resiliency leading to attrition of younger teachers. This, if unchecked could deprive nations of the dividends they need to accrue from the high investment made in teacher education.

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