A Review of Stress Moderator, Consequence and Management in Education Sector

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Abstract
Stress at work in education sector is interesting to be studied and discussed. Stress at work may happen in every sector including the education, which can happen to the academia including teachers and students. The objective of this paper is to examine the current state of knowledge about stress at work, the consequences, and managing the stress through a review of the literature. A systematic review of papers on stress related matters in education area published in year 2013-2017 was performed. Published papers relevant to stress at work in education area were reviewed, analyzed and synthesized. The selection criteria for this review include those that were: (1) written and published in English and (2) examined stress at education institution that can happen for teachers and students. The literature review identified three distinct lines of research that has focused on the causes and moderators, consequences and stress management. The emerging of new methods and approaches in the aspect of psychological, physiological, and behavior helps to manage and reduce stress. Thus, teachers need to be positive in facing challenges. Nevertheless, the educational institution also need to understand and take corrective measure on facets that causes stress among teachers. Undeniably, managing stress in daily life bridge the gap to create better working environment overall. Therefore, adopting appropriate strategies helps to reduce stress and harmonizes the teaching and learning atmosphere.
Keywords: Stress in Education, Stressors, Stress Consequence, Stress Management.

Introduction

Understanding teacher and student stress in education processes is beneficial not only to the education sector but to everyone that concerns to the education. From education point of view, understanding the stress both in the teacher and the students and its consequences is important to determine the suitable moderators to avoid or to reduce the stress in order to achieve effective learning processes. Published research on stress management that applied in education system is meaningful for improvement purposes. Institution, educator, student, or parents would take benefit from the research. This review contributes in providing literature review to the body of knowledge and the society of organization behavior development.

Stress at school that may happen to teachers, students and administration staff has emerged as an important topic relevant to everybody. Researches on teacher and student stress were conducted in all over the world. This paper reviews some papers that study about the stress at education sector mainly teacher and student stress. This mini literature review managed to review more than fifty indexed papers, published in several journals. From the number of papers reviewed, about 70% are research on teacher stress. There are various teachers and students as the research objects. Statistically, research on teacher stress is more widely spread in develop and in-develop countries, while only 1 of 18 papers on student stress was done in un-developed country.

Review and Issues of Stress

According to Schuler, stress is defined a dynamic condition in which an individual is confronted with an opportunity, demand, or resource related to what the individual desires and for which the outcome is perceived to be both uncertain and important. A growing body of evidences supports that teacher stress are due to workload (Alvarado and Bretones, 2018; Aherne et al., 2016; Bernard, 2016; Sneyers et al., 2016; Takahashi, 2016; Simone et al., 2016; Geng and Midford, 2015; Hamjah et al., 2015; Whitaker et al.,2015; Alhija, 2015; Chiu, 2015; Clark and Nguyen, 2014; Ghani, 2014), some papers clearly discussed the causes of stress structurally (Weinstein and Trickett, 2016; Clipa, 2015). Several researches done to examine the moderators that implemented to reduce stress (Sandilos et al., 2018; Monteiro et al., 2014; Friedman-Krauss and Raver, 2014; Alhija, 2015; Gray et al., 2017; Coccia and Darling, 2016; Aldrup et al., 2016; Whitaker et al., 2015; Tschiesner et al., 2014; Kao et al., 2013; Stauffer et al., 2013). This review focuses on three aspects, the causes of stress, the consequences and the stress management. Issues related to the current research methodology are identified and recommended areas for future research are provided.

Methodology

This literature review was aiming at exploring the current state of knowledge about stress at education activities mainly teacher stress and student stress. Key words used in the literature searches included stress, stress at school, teacher stress, student stress, stress management, and stress training. Due to limited time given, published research papers on teacher stress and student stress is limited to the latest five years since 2013. There was no additional data taken from any other sources included in this review.

Table 1. Country / Region Distribution

NO	REGION	ALL PAPERS		TEACHER STRESS		STUDENT STRESS	
		Quantity	%	Quantity	%	Quantity	%
1	Africa	3	6%	2	6%	1	6%
2	Asia	7	13%	5	14%	2	12%
3	Australia	3	6%	2	6%	1	6%
4	Europe	17	33%	12	34%	5	29%
5	South & Central America	1	2%	1	3%	0	0%
6	USA & Canada	21	40%	13	37%	8	47%

Result and Analysis

The terminology of stress and stress at work has been used in the research relevant to health, safety, psychology, and performance management. In this review, three lines of research characterize the study topic and include potential source of stress, stress mediator and moderator, stress consequences, and stress management. A relationship between potential sources and consequences is shown in Figure 1. Based on the model developed by Robbins and Judge, the potential sources are grouped into three factors: environment, organizational and personal. The consequences are also grouped into three based on the observed symptoms: physiological, psychological and behavioral. There are five mediators observed: perception, job experience, social support, personality traits, and culture. There is also moderators that influence the stress relationship model.
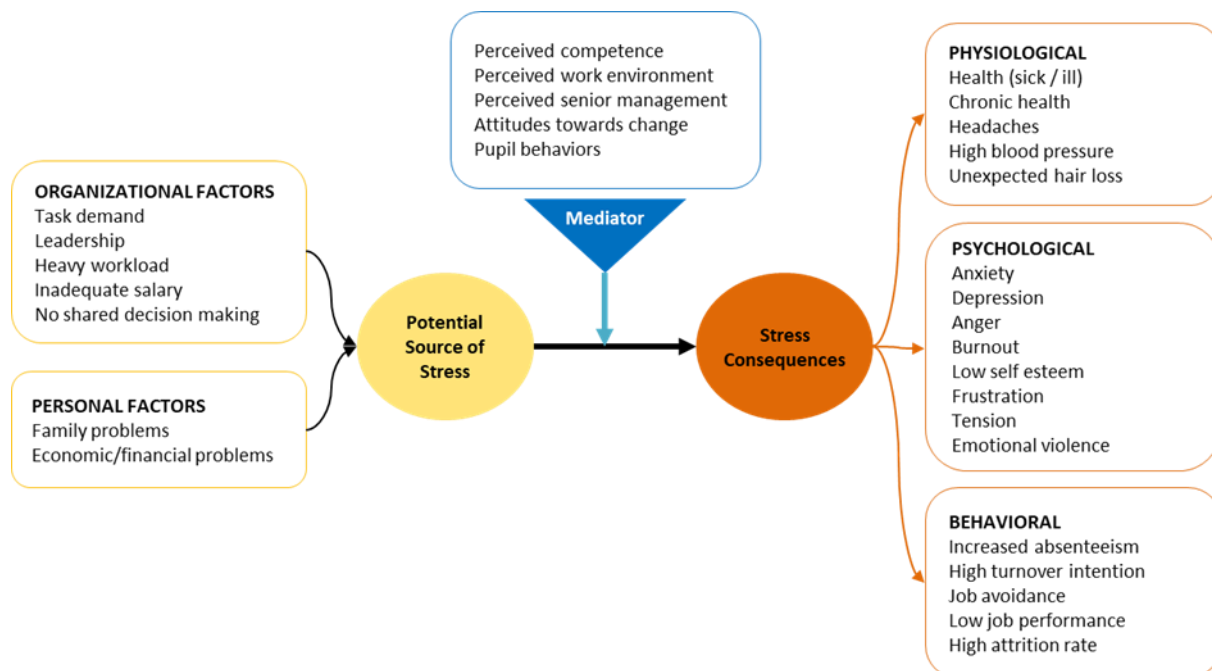
Figure 2 Synthesized Teacher Stress Model

Summary of the articles is presented in following tables, detail of each study can be found in appendix due to limited space available.

Table 3 Summary of 52 Literatures on Stress Management

GROUP	SUB-GROUP	AUTHORS	CONSTRUCT
Potential Source of Stress	Environmental Factors	Alvarado and Bretones (2018), Geng and Midford (2015), Clark and Nguyen (2014), Stauffer et al. (2013)	Socio-environmental conditions, working with mentor teachers, Academic incivility, Classroom management, School accreditation
Potential Source of Stress	Organizational Factors	Gray et al. (2017), Takahashi (2016), Geng and Midford (2015), Ghani et al. (2014), Stauffer et al. (2013)	Workload, Organizational demand, Teaching material, Administrative work, Income relative deprivation, Time allocation by task, Academic work commitment, Completing performance assessments, Recognition, Interpersonal relationships, work life balance
Potential Source of Stress	Personal Factors	Gray et al. (2017), Asrar-ul-Haq et al. (2017), Lockman and Servaty-Seib (2016), Takahashi (2016), Clipa et al. (2015), Geng and Midford (2015), Stauffer et al. (2013), Reilly et al. (2014)	Lack of financial support, Lack of mentor teacher support, Children (family problems), Conflicting work and family commitments, Self-esteem
Stress Moderator	Influence	Sandilos et al. (2018), Monteiro et al. (2014), Friedman-Krauss and Raver (2014), Alhija (2015)	Professional development, Demographic (age, gender, emotion regulation), Executive function skills, Class size
Stress Mediator	Perception	Alvarado and Bretones (2018), Ekornes (2017), De Simone et al.(2016), Whitaker et al. (2015), Ball and Anderson-Butcher (2014), Brunsting et al. (2014)	Perceived competence, responsibility, work environment (workplace), senior management, cognitive, behavioral and emotional coping strategies, student mental health needs and support systems
Stress Mediator	Job Experience	De Simone et al. (2016), Alhija (2015), Danyluk (2013)	Attitudes toward change, experience

Stress Mediator	Social Support	Gray et al. (2017), Coccia and Darling (2016), Aldrup et al. (2016), Whitaker et al. (2015), Tschiesner et al. (2014), Kao et al. (2013), Stauffer et al. (2013)	Social interactions, relatedness with students/colleagues, pupil behaviors, School climate
Stress Mediator	Personality Traits	Troesch et al. (2017), Bernard (2016), Sneyers et al. (2016), P. von der Embse et al. (2016), Lockman and Servaty-Seib (2016), Chiu (2015), Reilly et al. (2014)	Personal behaviors, irrational belief, neurocognitive insights, self-efficacy
Stress Mediator	Culture	Collie et al. (2015), Alhija (2015)	Social or culture background
Stress Consequences	Physiological	Ryan et al. (2017), Weinstein and Trickett (2016), Feld and Shusterman (2015), Oberlinner et al. (2015), Wolfram et al. (2013)	Health (sick / ill), Chronic health, Headaches, High blood pressure, Unexpected hair loss, Back pain, Lack of sleep
Stress Consequences	Psychological	Desouky et al. (2017), Ryan et al. (2017), Hecker et al (2017), Weinstein and Trickett (2016), Feld and Shusterman (2015)	Anxiety, Depression, Anger, Burnout, Low self-esteem, Frustration, Tension, Emotional violence, Emotional exhaustion
Stress Consequences	Behavioral	Desouky et al. (2017), Asrar-ul-Haq et al. (2017), Hecker et al (2017), Weinstein and Trickett (2016), Feld and Shusterman (2015)	Increased absenteeism, High turnover intention Job avoidance, Low job performance, High attrition rate
Stress Management	Organizational Intervention	Kiel et al. (2016), Berger et al. (2016), Greenberg (2016), Moghimislam et al. (2013)	Workplace wellness programs, Professional development, universal school-based resiliency intervention
Stress Management	Organizational - Individual	Prilleltensky et al. (2016), Greenberg (2016), Hamjah et al. (2015), Humphrey (2013), Flinchbaugh et al. (2013)	Mentoring and induction programs, Social emotional learning (SEL) programs, Local support group
Stress Management	Individual Intervention	Prilleltensky et al. (2016), Aherne et al. (2016), Greenberg (2016), Gallego et al. (2014), Lehto et al. (2013)	Mindfulness training, Self-compassion, Anticipated leisure benefits

The stressors found in the research are tabulated in Table-2. There are various stressors and summarized into 11 (eleven) items: workload, organization demand, social/culture, teaching material, administration work, class size, school climate, inter-personal skill and self-commitment. Considering to the stress model shown in Figure 1, the stressor are mostly come from personal and organization factors.

Table 4 Summary of Stressors

No	Author	Year	Country	Teacher	Student	Workload	Organ. Demand	Social / Culture	Teaching Material	Admin Works	Class Size	School Climate	Inter-personal	Self commit't	Class room Mgmt	Student learning	Others
1	Alvarado and Bretones	2017	Ecuador	√		√	√	√									
2	Sandilos et al.	2017	USA	√					√	√	√						
3	Ekornes et al.	2017	Norway	√													Not mentioned in the paper
4	Troesch et al.	2017	Switzerland	√													Not mentioned in the paper
5	Desouky and Allam	2017	Egypt	√													Not mentioned in the paper
6	Hecker et al.	2017	Tanzania	√													Not mentioned in the paper
7	Gray et al.	2017	Australia	√					√								
8	Asrar-ul-Haq	2017	Pakistan	√													Not mentioned in the paper
9	Ryan et al.	2017	USA	√								√					
10	Prilleltenshy et al.	2016	USA	√				√									
11	Coccia and Darling	2016	USA		√			√									
12	Kiel et al.	2016	Germany	√									√	√			
13	Aherne et al.	2016	Ireland		√	√			√								
14	Bernard	2016	Australia	√		√				√					√	√	
15	Sneyers et al.	2016	Belgium	√		√		√						√			
16	Lockman and Servaty-Seib	2016	USA		√												Not mentioned in the paper
17	Berger et al.	2016	Israel	√													Not mentioned in the paper
18	Takahashi	2016	Japan	√		√				√							Children presence
19	Weinstein and Trickett	2016	USA	√													Tabulated
20	von der Embse et al.	2016	USA	√					√						√		
21	Greenberg	2016	USA	√			√	√						√			
22	Aldrup et al.	2016	Germany	√											√	√	Emotional exhustion
23	Simone et al.	2016	Italy	√		√			√								
24	Bibbey et al.	2015	UK		√									√			
25	Feld and Shusterman	2015	USA		√												Self perception , attitude toward teacher
26	Oberlinner et al.	2015	Germany	√													Not mentioned in the paper
27	Geng and Midford	2015	Australia		√	√											Assessment, lack of understanding of teaching
28	Hamjah et al.	2015	Malaysia	√		√											
29	Whitaker et al.	2015	USA	√		√											
30	Clipa	2015	Romania	√				√	√	√	√					√	Tabulated; wage
31	Collie et al.	2015	Canada	√													Not mentioned in the paper
32	Ahija	2015	Israel		√	√	√	√									
33	Chiu	2014	Taiwan	√		√		√									Family, emotional
34	Ball and Anderson-Butcher	2014	USA	√													
35	Clark and Nguyen	2014	USA		√	√											Balancing time and relaxing time
36	Tsiester et al.	2014	Italy	√									√				Not mentioned in the paper
37	Lehto	2014	USA		√									√			Conflict, changes
38	Friedman-Krauss and Raver	2014	USA	√												√	
39	Brunsting et al.	2014	USA	√													Not mentioned in the paper
40	Gallego et al.	2014	Spain		√												Not mentioned in the paper
41	Ghani	2014	Malaysia	√				√					√			√	Recognition
42	Reilly et al.	2014	Ireland	√					√								
43	Monteiro et al.	2014	Botswana		√												Not mentioned in the paper
44	Moghinulslam et al.	2014	Iran		√												Not mentioned in the paper
45	Humphrey	2014	USA		√												Not mentioned in the paper
46	Feldt and Updegraff	2014	USA		√												Not mentioned in the paper
47	Wolfram et al.	2014	Germany		√												Not mentioned in the paper
48	Robertson and Dunsmuir	2014	UK	√													Not mentioned in the paper
49	Kao and Craige	2014	Taiwan		√												Interpreting activities
50	Danyluk	2014	Canada		√				√						√		Being evaluated, lack of sleep, life balance
51	Stauffer and Mason	2014	USA	√												√	School accreditation
52	Flinsbaugh et al.	2014	USA	√													

Workload is discussed in 13 research or 25% of total number of research, followed by social/culture, about 17%. Student behavior is mentioned in 6 (six) research (Aherne et al, 2016; Greenberg, 2016; Clipa, 2015, Friedman-Krauss and Raver, 2014; Ghani, 2014). School climate is mentioned once by Ryan et al. (2017). Teachers also recognize administration work as additional burden that causes

stress (Sandilos et al., 2017: Bernard, 2016; Takahashi, 2016; Clipa, 2016). There is a unique finding in Japan where presence of children is recognized as the stressor (Takahashi, 2016).

From research, social/culture factor is also stressor for students (Coccia and Darling, 2016; Alhija, 2016). Another stressor for student is self-commitment (Danyluk, 2014). Two stressors that related to inter-personal i.e. burdensomeness and thwarted belongingness are related to student suicidal ideation (Lockman and Servaty-Seib, 2016).

Stress moderators influence the relationship between stress causes and consequences including professional development, demographic (age, gender, emotion regulation), executive function skills, class size as discussed by Sandilos et al. (2018), Monteiro et al. (2014), Friedman-Krauss and Raver (2014), Alhija (2015).

There are also found five mediators in the articles. Perception including perceived competence, responsibility, work environment (workplace), senior management, cognitive, behavioral and emotional coping strategies, student mental health needs and support systems were discussed by Alvarado and Bretones (2018), Ekornes (2017), De Simone et al.(2016), Whitaker et al. (2015), Ball and Anderson-Butcher (2014), Brunsting et al. (2014). Job experience including attitudes toward change and experience were discussed by De Simone et al. (2016), Alhija (2015), and Danyluk (2013). Social support including social interactions, relatedness with students/colleagues, pupil behaviors, school climate were discussed by Gray et al. (2017), Coccia and Darling (2016), Aldrup et al. (2016), Whitaker et al. (2015), Tschiesner et al. (2014), Kao et al. (2013), and Stauffer et al. (2013). Personality traits including personal behaviors, irrational belief, neurocognitive insights, self-efficacy were discussed by Troesch et al. (2017), Bernard (2016), Sneyers et al. (2016), P. von der Embse et al. (2016), Lockman and Servaty-Seib (2016), Chiu (2015), Reilly et al. (2014). Culture including social or culture background were discussed by Collie et al. (2015), and Alhija (2015).

Irrational belief of teachers was one of the mediators where self-downing, authoritarianism, demands for justice, and low frustration tolerance have negative effect to teach stress as discussed by Robertson et al. (2013) and Bernard (2016).

In education field, stress not only has negative consequences for educators, it also results in lower achievement for students and hence higher costs for schools. According to several literatures high degrees of stress are normally accompanied by severe anxiety, depression and burnout.

In 2017, Luis Alvarado et al, in their study in elementary teachers found that the consequences were burnout. In addition, the teachers felt a deep sense of disappointment when dealing with the children of the school in Ecuador. These social and organizational demands are seen in an increase in chronic stress levels in teachers.

Meeting the daily learning and needs of students makes teaching a stressful job. Educators underwent significant depressive symptoms (Whitaker, et al, 2015; Luis Alvarado and F.D. Bretones; 2018), which showed a high prevalence of occupational stress.

Educators too experienced behavioral symptoms (Hecker, et al, 2018) of which it leads to an increased in low job performance. Also in one of the study by Hecker (2018), majority of teachers reported to apply violent forms of punishment to the students. This study was done in Tanzanian Secondary Schools.

The social-psychological theories based on Teacher Performance Motivation (TP-M) Theory (1982) indicated that organizational factor have an impact on the teacher's performance hence will end up in feelings of fatigue and lack of energy. The psychological problems from stress may also lead to low self-esteem and poor job performance.

The published studies, one of which were based upon the Maslach Burnout Inventory-Abbreviated measuring occupational burnout. Nelson, et al, 2014 found out that the salient factors that contributed to teacher burnout are such as role conflict, vague in task, and lack of administrator support.

Individual get into stress when there is conflict, unpleasantness, lack of time to accomplish task and so on. Education profession too face intense stress of teachers and students. Stress plays dual role, either it drives or drains a person. Different level and courses have different methods to overcome stress by teachers and students. Although a number of symptoms identified as the cause of stress however to overcome /manage stress is ultimately a different skills and understanding. One of the earlier studies by Moghimislam et al. (2013) noted that stress management programs such as planning, training and identifying the root cause of stress can minimize the level of pressure and eventually will be able to manage it. To add to it, the findings reveal that the more expose the students in stress management skills the better is the achievement of the students.

The challenging field of education do accumulate short-term and long-term stress especially among students. Monteiro et al., (2014) findings supported the influence of gender, age and emotion regulation on coping strategies among university students in Botswana. Creating a positive environment and awareness on the guidance of managing stress for students by the school authority will help the students to be stress-free. Drawing from the preceding literature Gallego et.al (2014) relates managing stress based on psychological approach. One of the techniques used in college students for prevention and dealing with stress is through mindfulness that gives impact on disease prevention, mental health and so on. Hence, stress among the teachers and students can be managed through personal, interpersonal and institutional effort (Prilleltensky et al., 2016).

It is also important for teacher to cope with stress and restore through physical, psychological or mental motivation. A qualitative study by Prilleltensky et al. (2016) pointed that for teachers stress are influenced by few factors such as the administration, the principal, and the working condition in the school. Teacher with low social emotional competence, classroom management skills and low autonomy in decision making are vulnerable to stress and depression (Greenberg, Brown, & Abenavoli, 2016). It is believed that supportive assistance and guidance such as mentorship, classroom management training, and compassionate working environment motivates teachers to retain in teaching profession (Prilleltensky, Neff & Bessell, 2016) and cope with stress effectively (Aherne et al., 2016). This will decrease the feel of being isolated and helpless.

On the other hand, researchers suggested contemplative interventions that uses the concept of "mindfulness" or known as the Mindfulness Based Stress Reduction (MBSR) a practice that involves movement or sequence of posture, breathing techniques and strategies in managing stress (Gallego et al., 2014; Greenberg, Brown, & Abenavoli, 2016). This practice involves meditation, body scan, eating and walking attentively (Aherne et al., 2016) which believed to help teachers and students to relieve and regain from tension and anxiety (Berger, Abu-Raiya, and Benatov, 2016). Meanwhile teachers are exposed to an excessive workload, emotional imbalance and physical tiredness, that

leads to moodiness and poor enthusiasm. One of the method that can lift to positivity is through spiritual approach, where this will strengthen and cleanse teacher's negative thoughts (Hamjah, 2015).

Apart from molding student's behavior, stimulating learning environment for academic advancement. Teacher's task is never easy as they need to cope with emotional and psychological stress from parents and administrator (Greenberg, Brown, & Abenavoli, 2016) Therefore, the professional development training helps teacher's to build their interpersonal skill and to work collectively with colleagues, administrative, students and parent (Prilleltensky, Neff & Bessell, 2016). Teachers who receive early training and feedback tend to implement appropriate techniques within the classroom setting which tend to reduce hectic condition (Kiel, Heimlich, Markowetz, Braun, & Weiß, 2016).

But then, the educational institution need to structure and manage a proper flow of communication especially issues related to role conflict and ambiguity and reduce excessive work demand (Greenberg, Brown, & Abenavoli, 2016). Creating a collaborative and effective culture will lead to stress prevention and positive well-being teachers and students (Vazi, Ruiter, Van den Borne, Martin, Dumont & Reddy, 2013). At the same, appropriate infrastructure and work setting with minimum hassle is essential for teacher and student to performance their task (Clark and Nguyen, 2014).

Discussion

Observing the research in 2014-2017 time span, there is a dynamic of concerns to the stressors. In early time, the workload including teaching material have been recognized as the stressors (Chiu, 2014; Clark and Nguyen, 2014; Ghani, 2014; Reilly, 2014; Danyluk, 2014). In other side, student behavior, interpersonal skill and self-commitment have also raised in 2014 (Friedman-Krauss and Raver, 2014; Ghani, 2014; Stauffer and Mason, 2014; Tschiesner et al., 2014; Lehto, 2014).

In 2015, the research found more variety of stressors. Stressor on organization demand was raised (Alhija, 2015), some other new stressors, administration work and class size (Clipa, 2015). In 2016, there was no new stressor raised, but each research applied multi stressors that raised in 2014 and 2015. In 2017, there was one new stressor raised, school climate (Ryan et al, 2017). The research on teacher and student stress was growing from time to time, shown by increasing variety of stressors.

Analysis methods of MANOVA, ANOVA, ANCOVA, regression, equation and t-test are among familiar and used a lot in analyzing stress causes, mediator, moderator, stress consequences as well as stress management. There are some other methodologies such as field study, phenomenology, qualitative, as well as mix qualitative and quantitative. Those statistical analysis methods were applied with suitability of sample numbers. Small number of sample, analysis was conducted using phenomenology and/or field study (Gray et al., 2017; Danyluk, 2013). An experimental method was also applied for small number of sample (Sneyers et al., 2016; Moghimislam et al., 2013). Multiple regression unfortunately applied for small number of sample (Robertson et al., 2013). Longitudinal method was applied in stress management research (Greenberg, 2016; Clark and Nguyen, 2014). Cortisol Awakening Response (CAR) was applied in stress consequence research (Wolfram et al.,

2013; Bibbey et al., 2015). The review proves that many methods were applied in teacher and student stress.

Table 1 Summary of Methods / Analysis

Methods	2013	2014	2015	2016	2017
STRESS CAUSES & MEDIATOR					
Qualitative					1
Mixed Qualitative & Quantitative					1
Field Study					1
MANOVA, ANOVA		1	2	1	
Regression, equations	2	2		3	
Questionnaire		1	1		
T-test			1		
Phenomenology	1				
Longitudinal					
Others	1	1	1	4	
TOTAL	4	5	5	8	3

Methods	2013	2014	2015	2016	2017
STRESS MANAGEMENT					
Qualitative				1	
Mixed Qualitative & Quantitative					
Field Study					
MANOVA, ANOVA, ANCOVA	1			1	
Regression, equations		1			
Questionnaire					
T-test	1				
Phenomenology					
Longitudinal Study		1		1	
Others	1	1	1	2	
TOTAL	3	3	1	5	0

Methods	2013	2014	2015	2016	2017
STRESS MODERATOR					
Qualitative					
Mixed Qualitative & Quantitative					
Field Study					
MANOVA, ANOVA					1
Regression, equations		1			
Questionnaire					
T-test					
Phenomenology					
Longitudinal					
Others		1			
TOTAL	0	2	0	0	1

Methods	2013	2014	2015	2016	2017
STRESS CONSEQUENCES					
Qualitative					
Mixed Qualitative & Quantitative					
Field Study					
MANOVA, ANOVA					
Regression, equations				1	2
Questionnaire					
T-test					1
Phenomenology					
Longitudinal					
Others	2	1	3		2
TOTAL	2	1	3	1	5

Conclusion and Future Research

Based on review paper published in 2013-2017, it is concluded that the research on teacher stress and student stress grows from time to time. Research were conducted around the globe with varies samples, different regions, wide coverage, and prudent analysis methodology. Various research in teacher stress and student stress have applied many different analysis method, ranged from qualitative to quantitative, statistical to experimental and even physical test up to mathematical equations. Most methodology applied are valid. From statistics point of view, most sample number

were adequate for statistical analysis. Some researchers were creative to apply suitable methods when the sample number is small. As a conclusion, the emerging of new methods and approaches in the aspect of psychological, physiological, and behavior helps to manage and reduce stress. Thus, teachers need to be positive in facing challenges. Nevertheless, the educational institution also need to understand and take corrective measure on facets that causes stress among teachers. Undeniably, managing stress in daily life bridge the gap to create better working environment overall. Therefore, adopting appropriate strategies helps to reduce stress and harmonizes the teaching and learning atmosphere.

Research moderator for teacher stress and student stress are still widely open. There are many moderators such as cultural matters need to be incorporated in the research. Effectiveness of intervention program as part of stress management is also area that widely open for research. It is interesting that an internal factor i.e. the attitude toward the stressors is effectively applied as a kind of stress management intervention (Hamjah et al.,2015). Further research on its applicability in other sector is suggested.

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References

Aherne, D., Farrant, K., Hickey, L., Hickey, E., McGrath, L., & McGrath, D. (2016). Mindfulness based stress reduction for medical students: optimising student satisfaction and engagement. *BMC Medical Education*, *16*(1), 209. https://doi.org/10.1186/s12909-016-0728-8

Aldrup, K., Klusmann, U., & L??dtke, O. (2016). Does basic need satisfaction mediate the link between stress exposure and well-being? A diary study among beginning teachers. *Learning and Instruction*, *50*, 21–30. https://doi.org/10.1016/j.learninstruc.2016.11.005

Alhija, F. N.-A. (2015). Teacher Stress and Coping: The Role of Personal and Job Characteristics. *Procedia - Social and Behavioral Sciences*, *185*, 374–380. https://doi.org/10.1016/j.sbspro.2015.03.415

Alvarado, L. E., & Bretones, F. D. (2018). New working conditions and well-being of elementary teachers in Ecuador. *Teaching and Teacher Education*, *69*, 234–242. https://doi.org/10.1016/j.tate.2017.10.015

Asrar-ul-Haq, M., Anwar, S., & Hassan, M. (2017). Impact of emotional intelligence on teacher's performance in higher education institutions of Pakistan. *Future Business Journal*, *3*(2), 87–97. https://doi.org/10.1016/j.fbj.2017.05.003

Ball, A., & Anderson-Butcher, D. (2014). Understanding Teachers' Perceptions of Student Support Systems in Relation to Teachers' Stress. *Children & Schools*, *36*(4), 221–229. https://doi.org/10.1093/cs/cdu017

Berger, R., Abu-Raiya, H., & Benatov, J. (2016). Reducing primary and secondary traumatic stress symptoms among educators by training them to deliver a resiliency program (ERASE-Stress)

following the Christchurch earthquake in New Zealand. *American Journal of Orthopsychiatry*, *86*(2), 236–251. https://doi.org/10.1037/ort0000153

Bernard, M. E. (2016). Teacher Beliefs and Stress. *Journal of Rational - Emotive and Cognitive - Behavior Therapy*, *34*(3), 209–224. https://doi.org/10.1007/s10942-016-0238-y

Bibbey, A., Phillips, A. C., Ginty, A. T., & Carroll, D. (2015). Problematic Internet use, excessive alcohol consumption, their comorbidity and cardiovascular and cortisol reactions to acute psychological stress in a student population. *Journal of Behavioral Addictions*, *4*(2), 44–52. https://doi.org/10.1556/2006.4.2015.006

Brunsting, N. C., Sreckovic, M. A., & Lane, K. L. (2014). Special Education Teacher Burnout: A Synthesis of Research from 1979 to 2013. *Education and Treatment of Children*, *37*(4), 681–711. https://doi.org/10.1353/etc.2014.0032

Chiu, S. I. (2014). The relationship between life stress and smartphone addiction on Taiwanese university student: A mediation model of learning self-Efficacy and social self-Efficacy. *Computers in Human Behavior*, *34*, 49–57. https://doi.org/10.1016/j.chb.2014.01.024

Clark, C. M., Nguyen, D. T., & Barbosa-Leiker, C. (2014). Student Perceptions of Stress, Coping, Relationships, and Academic Civility. *Nurse Educator*, *39*(4), 170–174. https://doi.org/10.1097/NNE.0000000000000049

Clipa, O., & Boghean, A. (2015). Stress Factors and Solutions for the Phenomenon of Burnout of Preschool Teachers. *Procedia - Social and Behavioral Sciences*, *180*(November 2014), 907–915. https://doi.org/10.1016/j.sbspro.2015.02.241

Coccia, C., & Darling, C. A. (2016). Having the Time of Their Life: College Student Stress, Dating and Satisfaction with Life. *Stress and Health*, *32*(1), 28–35. https://doi.org/10.1002/smi.2575

Collie, R. J., Shapka, J. D., Perry, N. E., & Martin, A. J. (2015). Teachers' beliefs about social-emotional learning: Identifying teacher profiles and their relations with job stress and satisfaction. *Learning and Instruction*, *39*, 148–157. https://doi.org/10.1016/j.learninstruc.2015.06.002

Danyluk, P. (2013). The Role of the Prepracticum in Lessening Student Teacher Stress: Student Teachers' Perceptions of Stress during Practicum. *Action in Teacher Education*, *35*(December 2014), 12. https://doi.org/10.1080/01626620.2013.846148

De Simone, S., Cicotto, G., & Lampis, J. (2016). Occupational stress, job satisfaction and physical health in teachers. *Revue Européenne de Psychologie Appliquée/European Review of Applied Psychology*, *66*(2), 65–77. https://doi.org/10.1016/j.erap.2016.03.002

Desouky, D., & Allam, H. (2017). Occupational stress, anxiety and depression among Egyptian teachers. *Journal of Epidemiology and Global Health*, *7*(3), 191–198. https://doi.org/10.1016/j.jegh.2017.06.002

Ekornes, S. (2017). Teacher Stress Related to Student Mental Health Promotion: the Match Between Perceived Demands and Competence to Help Students with Mental Health Problems. *Scandinavian Journal of Educational Research*, *61*(3), 333–353. https://doi.org/10.1080/00313831.2016.1147068

Feld, L. D., & Shusterman, A. (2015). Into the pressure cooker: Student stress in college preparatory high schools. *Journal of Adolescence*, *41*, 31–42. https://doi.org/10.1016/j.adolescence.2015.02.003

Feldt, R. C., & Updegraff, C. (2013). Gender invariance of the College Student Stress Scale. *Psychological Reports*, *113*(2), 486–9. https://doi.org/10.2466/03.PR0.113x23z0

Flinchbaugh, C. L., Moore, E. W. G., Chang, Y. K., & May, D. R. (2012). Student Well-Being Interventions. *Journal of Management Education*, *36*(2), 191–219. https://doi.org/10.1177/1052562911430062

Friedman-Krauss, A. H., Raver, C. C., Neuspiel, J. M., & Kinsel, J. (2014). Child Behavior Problems, Teacher Executive Functions, and Teacher Stress in Head Start Classrooms. *Early Education and Development*, *25*(5), 681–702. https://doi.org/10.1080/10409289.2013.825190

Gallego, J., Aguilar-Parra, J. M., Cangas, A. J., Langer, Á. I., & Mañas, I. (2014). Effect of a Mindfulness Program on Stress, Anxiety and Depression in University Students. *Spanish Journal of Psychology*, *17*(1), E109. https://doi.org/10.1017/sjp.2014.102

Geng, G., & Midford, R. (2015). Investigating first year education students' stress level. *Australian Journal of Teacher Education (Online)*, *40*(6), 1. https://doi.org/10.14221/ajte.2015v40n6.1

Ghani, M. Z., Ahmad, A. C., & Ibrahim, S. (2014). Stress among Special Education Teachers in Malaysia. *Procedia - Social and Behavioral Sciences*, *114*, 4–13. https://doi.org/10.1016/j.sbspro.2013.12.648

Gray, C., Wright, P., & Pascoe, R. (2017). There's a lot to learn about being a drama teacher: Pre-service drama teachers' experience of stress and vulnerability during an extended practicum. *Teaching and Teacher Education*, *67*, 270–277. https://doi.org/10.1016/j.tate.2017.06.015

Greenberg, M. (2016). Teacher stress and health: Effects on teachers, students, and schoosl, (September), 1–14. Retrieved from http://www.rwjf.org/en/library/research/2016/07/teacher-stress-and-health.html

Hamjah, S. H., Ismail, Z., Sham, F. M., Rasit, R. M., & Ismail, A. (2015). Spiritual Approach in Managing Work-related Stress of Academicians. *Procedia - Social and Behavioral Sciences*, *174*, 1229–1233. https://doi.org/10.1016/j.sbspro.2015.01.741

Hecker, T., Goessmann, T., Nkuba, M., & Hermenau, K. (2017). Teachers' stress intensifies violent disciplining in Tanzanian secondary schools. *Manuscript Submitted for Publication*, *76*(October 2017), 173–183. https://doi.org/10.1016/j.chiabu.2017.10.019

Humphrey, K. R. (2013). Using a Student-Led Support Group to Reduce Stress and Burnout Among BSW Students. *Social Work with Groups*, *36*(1), 73–84. https://doi.org/10.1080/01609513.2012.712905

Jesus, S. N. De, Miguel-Tobal, J. J., Rus, C. L., Viseu, J., & Gamboa, V. (2014). Evaluating the effectiveness of a stress management training on teachers and physicians' stress related outcomes. *Clinica Y Salud*, *25*(2), 111–115. https://doi.org/10.1016/j.clysa.2014.06.004

Kao, P.-C., & Craigie, P. (2013). Evaluating Student Interpreters' Stress and Coping Strategies. *Social Behavior and Personality*, *41*(6), 1035–1044. https://doi.org/10.2224/sbp.2013.41.6.1035

Kiel, E., Heimlich, U., Markowetz, R., Braun, A., & Weiß, S. (2016). How to cope with stress in special needs education? Stress-inducing dysfunctional cognitions of teacher students: the perspective of professionalisation. *European Journal of Special Needs Education*, *31*(2), 202–219. https://doi.org/10.1080/08856257.2015.1125693

Lehto, X. Y., Park, O., Fu, X., & Lee, G. (2014). Student life stress and leisure participation. *Annals of Leisure Research*, *17*(2), 200–217. https://doi.org/10.1080/11745398.2014.902293

Lockman, J. D., & Servaty-Seib, H. L. (2016). College student suicidal ideation: Perceived burdensomeness, thwarted belongingness, and meaning made of stress. *Death Studies*, *40*(3), 154–164. https://doi.org/10.1080/07481187.2015.1105325

Moghimislam, M., Jafari, P., & Hoseini, M. (2013). Impact of stress management training on the girl high school student academic achievement. *Procedia - Social and Behavioral Sciences*, *89*(2), 22–26. https://doi.org/10.1016/j.sbspro.2013.08.803

Monteiro, N. M., Balogun, S. K., & Oratile, K. N. (2014). Managing stress: The influence of gender, age and emotion regulation on coping among university students in Botswana. *International Journal of Adolescence and Youth*. Taylor & Francis. https://doi.org/10.1080/02673843.2014.908784

Oberlinner, C., Yong, M., Nasterlack, M., Pluto, R.-P., & Lang, S. (2015). Combined effect of back pain and stress on work ability. *Occupational Medicine (Oxford, England)*, *65*(2), 147–53. https://doi.org/10.1093/occmed/kqu190

Prilleltensky, I., Neff, M., & Bessell, A. (2016). Teacher Stress: What It Is, Why It's Important, How It Can be Alleviated. *Theory into Practice*, *55*(2), 104–111. https://doi.org/10.1080/00405841.2016.1148986

Reilly, E., Dhingra, K., & Boduszek, D. (2014). Teachers' self-efficacy beliefs, self-esteem, and job stress as determinants of job satisfaction. *International Journal of Educational Management*, *28*(4), 365–378. https://doi.org/10.1108/IJEM-04-2013-0053

Robertson, C., & Dunsmuir, S. (2013). Teacher stress and pupil behaviour explored through a rational-emotive behaviour therapy framework. *Educational Psychology*, *33*(2), 215–232. https://doi.org/10.1080/01443410.2012.730323

Ryan, S. V., von der Embse, N. P., Pendergast, L. L., Saeki, E., Segool, N., & Schwing, S. (2017). Leaving the teaching profession: The role of teacher stress and educational accountability policies on turnover intent. *Teaching and Teacher Education*, *66*, 1–11. https://doi.org/10.1016/j.tate.2017.03.016

Sandilos, L. E., Goble, P., Rimm-Kaufman, S. E., & Pianta, R. C. (2018). Does professional development reduce the influence of teacher stress on teacher–child interactions in pre-kindergarten classrooms? *Early Childhood Research Quarterly*, *42*, 280–290. https://doi.org/10.1016/j.ecresq.2017.10.009

Sneyers, E., Jacobs, K., & Struyf, E. (2016). Impact of an in-service training in neurocognitive insights on teacher stress, teacher professionalism and teacher student relationships. *European Journal of Teacher Education*, *39*(2), 253–266. https://doi.org/10.1080/02619768.2015.1121985

Stauffer, S. D., & Mason, E. C. M. (2013). Addressing Elementary School Teachers' Professional Stressors. *Educational Administration Quarterly*, *49*(5), 809–837. https://doi.org/10.1177/0013161X13482578

Takahashi, A. M. (2016). Job stress in Japanese academia: The role of relative income, time allocation by task, and children. *Journal of Asian Economics*, *43*(15), 12–17. https://doi.org/10.1016/j.asieco.2016.01.004

Troesch, L. M., & Bauer, C. E. (2017). Second career teachers: Job satisfaction, job stress, and the role of self-efficacy. *Teaching and Teacher Education*, *67*, 389–398. https://doi.org/10.1016/j.tate.2017.07.006

Tschiesner, R., Tauber, S., Martina, P., & Farneti, A. (2014). Pupils' Interpersonal Problems and Occupational Stress in Teacher. Preliminary Results. *Procedia - Social and Behavioral Sciences*, *140*, 197–199. https://doi.org/10.1016/j.sbspro.2014.04.409

von der Embse, N. P., Sandilos, L. E., Pendergast, L., & Mankin, A. (2016). Teacher stress, teaching-efficacy, and job satisfaction in response to test-based educational accountability policies. *Learning and Individual Differences*, *50*, 308–317. https://doi.org/10.1016/j.lindif.2016.08.001

Weinstein, T. L., & Trickett, E. J. (2016). The development of an instrument to measure English Language Learner (ELL) teacher work stress. *Teaching and Teacher Education*, *55*, 24–32. https://doi.org/10.1016/j.tate.2015.12.001

Whitaker, R. C., Dearth-Wesley, T., & Gooze, R. A. (2015). Workplace stress and the quality of teacher-children relationships in Head Start. *Early Childhood Research Quarterly*, *30*(PA), 57–69. https://doi.org/10.1016/j.ecresq.2014.08.008

Wolfram, M., Bellingrath, S., Feuerhahn, N., & Kudielka, B. M. (2013). Cortisol responses to naturalistic and laboratory stress in student teachers: Comparison with a non-stress control day. *Stress and Health*, *29*(2), 143–149. https://doi.org/10.1002/smi.2439