

Superintendent Stress and Superintendent Health: A National Study

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Abstract

Descriptions of the superintendency often highlight the pressure involved with being CEO of a complicated enterprise, responsible for millions of dollars, and multitudes of employees, at a time when districts are under added scrutiny. Stress has been proven repeatedly to effect worker health (Beehr & Newman, 1978; Cheng, et al., 2012; Hobson, Delunas, & Kesic, 2001). While there has been considerable research highlighting job-related stress in the public sector (Bacchus, 2008; Galanakis, et al., 2009; Monesh & Patil, 2012; Snapp, 1990), fewer studies have focused on education in general. The purpose of this study was to conduct a national survey in order to expand on previous research on stress in the superintendency by addressing the link between the superintendents' levels of stress and their health and well-being.

Keywords: superintendency, stress, health, leadership, administration

1. Introduction

Descriptions of the superintendency often refer to the stress involved with being the CEO of complicated enterprise, responsible for millions of dollars, and hundreds to thousands of employees, at a time when preK-12 districts are under attack. We wondered at the level of stress that superintendents' experience as well as the relationship of that stress to superintendent health. We were also curious about whether there was difference on the amount and impact of stress based upon superintendent gender and race. Studies of micro-racism and low level, but constant, sexism that people of color and women experience in the workplace, it seemed plausible that stress might have a differential effect, depending upon the race and gender of the superintendent. Therefore, we set out to understand superintendent stress levels, health conditions, and the relationship of the two as mediated by gender and race.

2.0 Conceptualizing Stress and Health

2.1 Stress

When exploring the topic of stress, it is important to have an understanding of what we mean by the word itself. Before applying it to the workplace, let's look at the process in a more generalized situation. According to Levi's (1984) definition of stress: It refers to a process in the body, to the body's general plan for adapting to all the influences, changes, demands and strains to which it might be exposed. This plan swings into action, for example, when a person is attacked in the street, but also when someone is exposed to radioactivity or to extreme heat or cold. But it is not just physical strains which activate this plan; mental and social ones do so as well - for instance, when we are reminded of an unpleasant experience or are expected to achieve something of which we do not believe we are capable, or when, with or without cause, we worry about our job or family life (p. 1).

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2.2 Work Related Stress

While stress can occur in all aspects of life, one primary location for increased levels of stress takes place in a work setting. Work related stress can be defined as "the adverse reaction people have to excessive pressure or other types of demand placed on them" (Health and Safety Executive, 2001, p.1). Johnson, Cooper, Cartwright, Donald, Taylor, and Cook (2009) suggest that work related stress is often a complex equation made up of a number of factors:

The amount of stress a person experiences at work is likely to be a result of the interaction of a number of factors such as the type of work they are doing (their occupation), the presence of work stressors, the amount of support they receive both at work and at home and the coping mechanisms they use to deal with stress (p. 69). Previous research in the area of workplace stress found that there are a number of occupations that tend to have high stress. These include the healthcare industry (Cooper et al., 1999; Gold et al., 1992), construction (Campbell, 2006), firefighters (Bachrach & Bamberger, 2007), social workers (Kahn, 1993), business (Bhuiyan, Menguc, & Borsboom, 2005; Cooper & Marshall, 1978; Kobasa, 1979), and the military (Adam et al., 2008; Bolino, Turnley, Gilstrap, & Suazo, 2010). These studies most often focus on the reporting of stress and job performance.

2.2.1 Stress in Education.

Historically, the research on stress in education has most often examined the stress of the classroom teacher (Austin, Shaw, & Muncer, 2005; Brown & Uehara, 1999; Crookston & Barlow, 2012; Edmonson & Thompson, 2002; Kukla-Acevedo, 2010; Kyriacou, 2001; Travers & Cooper, 1996) or personnel in higher education (Aleman & Renn, 2002; Collins, 2009; Keim & Erickson, 1998). The connection between these contexts is that the field of education -- whether K-12 or post-high school -- has become increasingly complex in recent years, thus contributing to the increased levels of stress.

2.2.2 Stress in the Principalship.

In the early 1980s, Walter Gmelch began studying stress and the principalship. A review of some of his studies explore the topics of school administrator stress (Gmelch & Swent, 1984), coping mechanisms (Gmelch & Chan, 1982), and creation of a coping taxonomy in response to workplace stress (Gmelch, 1988). Based on his pioneering work, a large number of studies on stress in the principalship have followed over the years, in dissertations (Finaldi, 1983; Hall, 2007; Harrison, 1991; Horgen, 1991; Romney, 2012; Welmers, 2005), journal articles (Allison, 1997; Carr, 1994; Cushing, Kerrins, & Johnstone, 2003; Goodwin, Cunningham, & Childress, 2003; Whitaker, 1996) and books (Brock & Grady, 2002; Brock & Grady, 2004; Queen & Queen, 2005). In addition, a large body of research on principal stress has focused specifically on the unique challenges of female principals as they navigate the workplace (Buss, 2008; Goeller, 1995; Lucas, 2003; Shakeshaft, Nowell, & Perry, 1991; Smulyan, 2000).

2.2.3 Stress in Superintendency.

While there are nowhere near the same number of studies that address superintendent stress in comparison to principal stress, the research in this area is growing, most likely due to the increased complexity of the position (Brunner, Grogan, & Bjork, 2002; Carter & Cunningham, 1997; Kowalski, 2005). Carr (2003) labeled the superintendency the toughest job in America. In reviewing the historical levels of superintendent stress as measured by the American Association of School Superintendents (AASA) decade and mid-decade studies, the superintendents that report the two highest levels of stress combined (*very great stress* and *considerable stress*) went from 43.6 percent in 1980 to 50.3 percent in 1992 followed by 51.5 percent in 2000 and 59.2 percent in 2006 (Glass & Franceschini, 2007). The overall levels of superintendent stress were not collected in the 2010 survey, instead focusing on stress tied to the use of technology in the position, which was considerably less stress than previous reports on overall stress levels (Kowalski, McCord, Petersen, Young, & Ellerson, 2011).

When reviewing the literature on superintendent stress, a variety of factors emerged. First, were studies that explored the high price of superintendent stress (Cunningham & Burdick, 1999; Hall & Difford, 1992; Stover, 2002). Further studies have concentrated on the issues of job satisfaction (Glass & Franceschini, 2007; Hawk & Martin, 2011; Solomon, 2012). Cunningham & Burdick (1999) identified the unintended consequences of the time and stress associated with the position of superintendent and the decline in applicants for the. A study conducted by Wise (2008) examined the unique challenges of superintendents under the age of 35 hired to run a district.

A number of state-level dissertation studies have been conducted in which focused on the superintendency. The effects of stress was a finding in this research in Iowa (Botts, 1986), Montana (Carson, 1999), Texas, (Smith, 2001), Ohio (Castle, 2002), California (Kawaguchi, 2014).

Additional research has been conducted on superintendents who choose to leave the position, with a mitigating factor in the decision to exit, particularly for female superintendents (Allen, 1996; Beekley, 1999; Downing, 2009; Harris, Lowry, Hopson & Marshall, 2004; Loder, 2005; Patillo, 2008; Robinson, 2013). Studies have also shown that running a small, rural superintendency where the expectation of wearing many hats is perceived to be more stressful than leading a larger district which has more support systems, and is another reason why superintendents decide to leave (Czaja & Harman, 1997; Freese, 2003; Grady & Bryant, 1988; Tallerico & Burstyn, 1996). As Freese (2003) explains, the exit is often due to the combination of both positional pressures and personal stress.

2.3 Health

So what does stress have to do with health? Cohen, Kessler, and Gordon (1997) believe stress is "a process in which environmental demands tax or exceed the adaptive capacity of an organism, resulting in psychological and biological changes that may place persons at risk for disease" (p. 3). In most cases, prolonged exposure to high amounts of stress have a negative effect on a person's overall health (Faragher, Cass, & Cooper, 2005; Johnson et al., 2009).

2.3.1 Historical Studies of Stress and Health.

At the beginning of the twentieth century, Dr. Walter Cannon, who is considered the forerunner in research on stress in individuals, began his first investigations. His first studies found there was a correlation between a person's health and the stress of life-changing events (Cannon, 1915). At the same time, Dr. Adolf Meyer at Johns Hopkins University conducted research and proposed the idea of a "life chart" to diagnose a person's health as it related to life events. "Meyer's biographies of the patients showed a clear and dramatic correlation between crisis and disease. Patients who experienced many major events in their lives within short periods very frequently became seriously ill" (Albrecht, 1979, p. 213).

This inability to get away from continuous periods of stress is what causes the greatest damage to health. As Mohd (2008) suggests, "research shows that almost every system in the body can be influenced by chronic stress. When chronic stress goes unreleased, it suppresses the body's immune system and ultimately manifests as illness" (p. 11).

A number of studies have established links between stress and disease. According to the US Department of Health, Education, and Welfare, as early as 1972 stress was reported to contribute to a number of mental disorders and physiological diseases, including heart attacks, hypertension, cancer, and high blood pressure (McFarlane, et al., 1980). Stress has also been shown to be linked to anorexia, asthma attacks, arthritis, backaches, cancer, diabetes, epilepsy, heart attacks, gastrointestinal disorders, migraine headaches, and multiple sclerosis (Horgen, 1991).

2.3.2 Superintendent Health.

While superintendent stress is the focus of a number of studies, there are many fewer published studies on the topic connecting superintendent stress to superintendent health and well-being. Sharp & Walter (1996) conducted a two-state study investigating the health of the superintendent. This was one of the first studies that provided qualitative stories behind the declining physical and mental health of some superintendents. Stress and health were addressed in relation to home and family life in studies conducted by Passalacqua (2007) and Olesniewicz (2012). Both studies emphasized the importance of keeping a balance since people were depending on the superintendent both at work and at home. Finally, Robinson (2013), in a study of female superintendents who left the superintendency, connects superintendent stress to superintendent health and well-being, and to the decision to exit the superintendency.

3.0 Purpose

Findings from a previous Robinson & Shakeshaft (in press) study regarding the level of stress that women superintendents described and the health challenges they faced, led us to wonder if this relationship between stress and critical health incidents was confined to women leaving the superintendency. We were curious to know if practicing superintendents were experiencing these same levels of stress and health issues.

We also were curious about the amount of stress that male superintendents report experiencing and whether there is a relationship to male superintendent health. And if so, were these gender differences repeated based upon race?

The purpose of this study was to expand on previous research on the topic of stress in the superintendency by addressing the link between the superintendents' levels of stress in the position and superintendent health and addressed the following questions:

1. What are the common job stressors perceived by superintendents? Do these stressors differ by gender and/or race?
2. What are the common health ailments identified by superintendents? Do these ailments differ by gender and/or race?

4.0 Methods

4.1 Research Design

We chose survey research to answer our questions because it is the most efficient way to make comparisons across a large number of respondents. A survey was constructed based on the findings from previous research on job satisfaction and health as well as studies related to occupational stress, CEO health data, and job satisfaction. The survey includes items from occupational stress instruments (Hawk, 2008) as well as medical and well-being conditions that have been found to be related to stress. Other causes of stress, beyond occupational issues in the superintendency, were also included in the survey, as were items related to district and superintendent demographics. Additionally, respondents were asked to rate a list of current stresses and challenges affecting school districts in 2015 as identified in AASA and other professional publications.

4.2 Sample

A stratified random sample of superintendents was selected for this study, using MDR generated lists, with over sampling to include a robust proportion of women and other underrepresented groups in the superintendency. The total number of public school superintendents in the United States is just under 13,500. A representative sample for all of the superintendents in the U.S., at a 95% confidence level, is 375 respondents. Therefore, we over-sampled to insure a large enough response rate. Our final sample was 6,540 superintendents, stratified by geographic area, race, and gender. A pre-test and pilot of smaller numbers was undertaken as part of the survey development. We had 1,865 superintendents complete the survey for a 28.5% response rate. Non response bias tests were conducted to determine if those who didn't respond provided similar responses as those who did. There were no differences between the two groups on key categories and questions.

4.3 Data Collection

Superintendents received an electronic invitation to participate in the study during January and February 2015. Prior to this invitation, the sample received announcements of the survey focused on the importance of the topic and the importance of responses. The survey was hosted on *Survey Monkey* and respondents were not able to be identified. Data collection began at the completion of the survey window, which included three follow-up contacts.

4.4 Data Analysis

Descriptive statistics were used for identifying the stress and health issues faced by respondents. Correlations examined the relationships between level of stress and levels of health. Multiple regression analysis examines the relationships among several stress variables and health outcomes. Tests of difference (ANOVA, t-test) examined differences by gender and race.

5.0 Findings

5.1 Stress levels

When asked about overall professional stress, respondents reported slightly more professional stress ($\bar{X} = 3.7$) than day to day professional stress ($\bar{X} = 3.4$) or personal stress ($\bar{X} = 2.8$).

	Professional Stress	Personal Stress	Day to Day – Both Personal and Professional
Mean:	3.7	2.8	3.4
Percent Considerable to Extreme Stress	53.3	19.4	37.6

Scale: 1 = no stress to 6 = extreme stress

There were no statistically and practically significant differences by race on professional or day-to-day stress³. In addition to these questions, superintendents were asked to respond to a 10 item stress scale used in other stress studies. The mean composite stress level on this scale was 3.2, using ratings from 1 = *Never* to 5 = *Very Often*. Because this 10-point scale used a different range of responses (1 to 5) than the superintendents' personal and professional assessments (1 to 6), we did not compare the two.

Table 2 lists the items on the 10-point scale on which the stress rating was more that 3.0 (the midpoint).

Question	\bar{X}	Percent Fairly and Very Often
In the last month, how often have you felt nervous and stressed?	3.7	42.7
In the last month, how often have you been upset because of something that happened unexpectedly?	3.1	26.5

Scale: 1 = never to 5 = very often

Another way to understand the level of stress is to examine the proportion of superintendents that reported higher or lower levels of stress in the past month. For instance, 97.1% of superintendents were upset because of something that had happened unexpectedly during the previous month, but only 25.3% experienced the unexpected fairly or very often. Similarly, 98.4% of superintendents felt nervous and stressed in the past month with 40.5% reporting that this was a fairly or very often event; 16.5% were never or almost never stressed. There were no statistically and practically significant differences by gender and race in any of the stress measures.⁴

5.1.1 Stressors.

When asked about work situations that caused stress, superintendents responded to a 6 point scale from 1 = *no stress* to 6 = *extreme levels of stress*. The means, from high to low, are displayed in the table below. Realizing that 3.5 would be a halfway mark, it is clear that for most items, superintendents are moderately to considerably stressed: 2 = *little stress*, 3 = *moderate stress*, 4 = *considerable stress*. Seen a different way, more than half of the superintendents reported moderate to extreme stress on 11 of the factors.

³There were statistically significant differences in personal stress reported, with black females ($\bar{X} = 3.1$) experiencing more stress than white females ($\bar{X} = 2.7$), black males ($\bar{X} = 2.7$) but not white males ($\bar{X} = 2.8$). However, the variance accounted for by race and gender was only 5% for the difference between black and white females and 2% for the difference between black females and black males.

⁴There was a statistically significant difference in the overall stress score ($p = .04$), something unexpected happened ($p = .996$), and could not cope with all of the things that had to be done ($p = .009$). However, these statistically significant differences were not practically significant, accounting for less than 1% of the variance.

Stressor	Mean	S.D.	Percent: moderate to Extreme Stress
Changing state and federal regulations	3.76	1.30	75.8
Time required by the job	3.65	1.26	75.9
Inadequate school finance	3.60	1.34	72.9
Work-life balance	3.41	1.21	71.2
Student test and performance accountability	3.40	1.24	70.7
Teacher and/or administrator evaluation systems	3.22	1.19	64.6
Participating in after school activities at the expense of personal time	3.15	1.33	58.9
Relations with the school board	3.07	1.38	53.9
Demands of special interest groups	2.99	1.28	52.3
Supervising and coordinating multiple tasks, overwhelming responsibilities	2.96	1.28	53.9
NCLB/Race to the Top	2.95	1.28	53.9
Job performance of principals	2.73	1.11	48.4
Relations with the community	2.64	1.11	42.4
Job performance of central office employees	2.58	1.10	48.4
Meeting extracurricular expectations (participation in local organizations)	2.39	1.10	34.9
Relations with the teachers' union	2.34	1.25	53.9
Using social media for district communication	2.24	1.07	29.7
Too many insignificant demands	2.19	1.24	62.5
Speaking in front of groups	1.98	0.96	20.6
Feeling not fully qualified to handle the job	1.90	0.98	18.7

All of the possible stressors were factor analyzed using principal component analysis with Varimax (orthogonal) rotation. The analysis yielded three factors explaining 51.4% of the variance for the entire set of variables. Two other factors brought the explanatory power to 62.2%, but these variables contained only two items each and therefore were not included. We labeled Factor 1 "Time", due to the high loadings of 4 items (.65 to .8). We labeled the second factor "Federal and State Constraints" and it included 4 items, with loadings from .67 to .82. Factor 3 included three items, with .7 to .73 loadings and we named it "Group Demands".

We calculated three new variables, to represent each of the factors, and examined the by gender and race. While there were statistically significant differences by both gender and race for the time factor, these were not meaningful, accounting for less than 1% of the variance.

TIME	STATE and FEDERAL CONSTRAINTS	GROUP DEMANDS
Time required by the job	Inadequate school finance	Demands of Special interest groups
Work-Life balance	NCLB/Race to the Top	Relations with School Board
Feeling I have to participate in school activities outside of the normal working hours at the expense of my personal time	Constantly changing state and federal regulations	Relations with Community
Supervising and coordinating multiple tasks	Student test performance and accountability	

There were statistically significant differences in the intensity of the stressors by gender and race; however none of these differences were practically significant.

5.2 Consequences of Stress

Superintendents were asked to reflect on the degree to which stress affected their relationships, work, family life, and health. Table 5 below displays the means for each item, on a scale where 1 = Disagree and 5 = Agree.

Consequence	Mean	S.D.	Percent⁵
Stress has negatively affected my physical health	3.46	1.43	59.9
Stress has negatively affected my mental health	2.96	1.46	44.6
Stress has negatively affected my relationship with a spouse or partner	2.8	1.48	40.8
Stress has negatively affected my relationships with friends	2.55	1.41	33.7
Stress has negatively affected my relationships with my children	2.51	1.43	31.7
Stress has negatively affected the quality of my work	2.44	1.31	27.6
Stress has negatively affected my relationships with other staff in the district	2.39	1.31	
Stress has negatively affected my relationships with my school board	2.38	1.38	26.8
Stress has negatively affected my relationships with my immediate staff	2.33	1.29	25.4
Stress has negatively affected my relationships with the community	2.13	1.19	15.9

There were no statistically and practically significant differences in the consequences of stress by race and gender.

5.3 Health

We asked the superintendents to identify their health conditions through a choice of no signs, concerned, developed as a superintendent, currently have condition, and take medication for it. For the analysis below, we looked at the percentages of superintendents who reported that they had the condition and/or were taking medication for it. Table 6 below provides those percentages.

Health Condition	Percent that has this condition and/or takes medication for this condition
High cholesterol	26.7
High blood pressure	25.8
Obesity	16.6
Gastrointestinal problems	13.1
Insomnia	11.3
Anxiety	8.8
Sleep apnea	8.7
Chronic headaches	7.9
Asthma	6.5
Diabetes	5.1
Heart disease	5.0
Clinical depression	2.7
Chronic fatigue syndrome	2.5
Cancer	1.7
Eating disorder	1.6
Fibromyalgia	1.1
Heart attack	1.0
Post-traumatic stress disorder	1.0
Alcoholism	0.4
Stroke	0.3
Cushing's syndrome	0.2
Drug abuse	0.1

⁵ Percent somewhat agreed and agreed

There were several other health conditions that superintendents listed. In most cases, these were mentioned by just one or two of the respondents. We have grouped these in the table below.

Table 7: Other health conditions identified by superintendents
Lupus, Graves' disease, Lyme disease, kidney disease
Poor nutrition, eye strain, weight gain, heart Attack, insomnia/lack of sleep
Hypo/hyperthyroidism, other thyroid issues
Body aches, muscle spasms, migraines, back pain/problems, carpal tunnel, arthritis
Mental health issues, such as depression, anger issues, OCD, anxiety; lack of social life or leisure time; sex issues, such as ED
Gout, shingles, MGUS
Autoimmune system issues, including flu/colds, Crohn's disease, celiac disease, bronchitis, exhaustion, Myasthenia Gravis
Substance abuse including cigarettes, caffeine
Fever blisters, ulcers, skin conditions, acid reflux, cracked teeth/jaw issues
Epilepsy, Peripheral nerve disorder, Periodic limb movement disorder, Complex regional pain syndrome

Additional insight was garnered through the open-ended responses of our survey. Of the 78 participants who provided additional information, 11 mentioned problems with their thyroid, seven described skin-related issues such as hives, eczema, shingles, and psoriasis. Other physical manifestations of long-term exposure to stress included acid reflux, twitching limbs, ulcers, excessive colds, stress related allergies, clenching teeth, erectile dysfunction, and stress induced seizures. A number of responses spoke to random aches and pains in locations across the body. As one white male superintendent shared, "I have constant neck, jaw and shoulder pain in addition to decreasing cardiovascular fitness due to no time for exercise. I also have no time for socializing or relaxing."

A number of participants understand the importance of taking care of themselves while operating in the position that it will help ensure a healthier tenure in the position. As one white female superintendent explained: I have had high blood pressure and been obese. I realized I would not live long if I didn't do something, so I lost 70 lbs. over the past two years and no longer take blood pressure medicine. At this age in my life I've come to terms with the fact that the work will never be done; therefore, I am working very hard to take care of my personal health and well-being. But I still desperately want to make a meaningful contribution to public education. This is my mission, and it is not yet fulfilled.

An African American male superintendent also had a change of philosophy in terms of taking better care of himself:

In my first years as superintendent I developed high blood pressure, gout and diabetes over the first three year. I could not understand why anyone did this job. But half way into third year, I had developed enough external skills and internal capacities that I was able to come to terms with my work and have since learned to thrive. All my health conditions disappeared over this time. I have some concern they are returning, but also believe this, for me, will be temporary.

We were also interested in whether any of these conditions were acquired as a consequence of or during the superintendency. Many people mentioned family history of diseases and preexisting conditions that were worsened by stress as a superintendent. Table 8 lists the percent of superintendents that acquired the condition during the superintendency.

Health Condition	Percent that developed the condition while in the superintendency
Insomnia	15.4
High blood pressure	13.0
Obesity	11.6
High cholesterol	11.3
Gastrointestinal problems	10.2
Anxiety	9.8
Chronic headaches	7.8
Sleep apnea	7.5
Chronic fatigue syndrome	3.2
Diabetes	3.2
Heart disease	2.7
Cancer	2.5
Eating disorder	2.4
Clinical depression	2.0
Asthma	1.5
Alcoholism	1.4
Heart attack	0.9
Post-traumatic stress disorder	0.9
Stroke	0.8
Fibromyalgia	0.6
Drug Abuse	0.3
Cushing's syndrome	0.2

Finally, we asked superintendents if they were concerned about developing any medical conditions because of the stress they experienced in the superintendency. Table 9 presents those results.

Health Condition	Percent concerned might develop this condition
Heart attack	21.8
Anxiety	20.9
Heart disease	20.6
Stroke	18.0
Obesity	17.5
Insomnia	14.6
High blood pressure	13.4
High cholesterol	11.9
Diabetes	13.8
Chronic fatigue syndrome	11.6
Sleep apnea	10.8
Clinical depression	10.6
Cancer	9.7
Gastrointestinal problems	9.7
Chronic headaches	8.7
Alcoholism	8.5
Eating disorder	4.4
Post-traumatic stress disorder	2.7
Fibromyalgia	2.0
Asthma	1.6
Drug abuse	0.8
Cushing's syndrome	0.6

In examining the health conditions by gender, we found very few differences that were both statistically and practically significant. Those we did find are listed below.

Concerned that will develop condition

- Sleep Apnea: 14.3% of males v 7.1% of females, $p = .000$; contingency coefficient = .115

Developed this condition while superintendent

- Sleep apnea: 9.6% of males v 5.2% of females, $p = .000$; contingency coefficient = .084
- Insomnia: 11.9% of males v 19.3% of females, $p = .000$; contingency coefficient = .102
- Diabetes: 8.1% of all other race superintendents v 2.8% of white superintendents, $p = .002$; contingency coefficient = .08

Currently had condition or taking medication for the condition

- High blood pressure: 29.8% of males v 21.3% of females, $p = .000$; contingency coefficient = .097
- Cholesterol: 31.4% of males v 21.6% of females, $p = .000$; contingency coefficient = .11
- Heart disease: 6.7% of males v 3.1% of females, $p = .000$; contingency coefficient = .08
- Obesity: 13.8% of males v 19.7% of females, $p = .00$; contingency coefficient = .078
- Diabetes: 6.7% of males v 3.5% of females, $p = .00$; contingency coefficient = .07
- Sleep apnea: 12.3% of males v 4.8% of females, $p = .000$; contingency coefficient = .13
- Chronic headaches: 5.1% of males v 11% of females, $p = .000$; contingency coefficient = .108
- Fibromyalgia: .3% of males v 2% of females, $p = .000$; contingency coefficient = .08
- Insomnia: 8.6% of males v 14.3% of females, $p = .000$; contingency coefficient = .089
- Heart attack: 1.7% of males v .2% of females, $p = .001$; contingency coefficient = .08

6.0 Relationships between Stress and Health

We calculated the number of health conditions for each person and correlated that with the level of stress reported by the respondent. Table 10 displays frequency data for health conditions.

	Mean	Range
Number of conditions that developed while Superintendent	1.1	1 to 10
Number of conditions overall	4.31	1 to 19

We examined the relationship between number of health conditions and reported level of stress and found that there was a meaningful relationship between Day to Day stress and the number of health conditions developed while a superintendent.

	Total Health Conditions	Statistical Significance	R2	Conditions Developed while Superintendent	Statistical Significance	R2
Day to Day Professional stress	.18	.000	.3	.19	.000	.04
Day to Day Personal Stress	.18	.000	.3	.3	.000	.09
Both Professional and Personal Day to Day Stress	.22	.000	.05	.3	.000	.09

7.0 Summary

While stress in the superintendency has previously been documented through a few questions on multiple AASA decade surveys (Cunningham & Hentges, 1982; Glass, 1992; Glass, Björk, & Brunner, 2000; Glass & Franceschini, 2006), these studies focused on the level of stress in general.

Glass & Franceschini (2006) speculated the possible causes of tension. "Tight funding, No Child Left Behind (NCLB) demands, negative media, board relations, and conflicting community demands are possible sources for superintendent stress" (p. 47). We were interested in investigating the actual topics that the participants identified as stressful.

Collectively, the superintendents in this study revealed that **overall changing state and federal regulations, time required by the job, and inadequate school finance** were the three greatest factors of occupational stress. Two of these same areas (legislative mandates, budget restraints) echo the findings of stress identified by Hawk and Martin (2011). The areas identified as *considerable stress* or above (scoring a three or above) were the three choices above as well as work-life balance, student test and performance accountability, teacher and/or administrator evaluation systems, participating in after hour activities at the expense of personal time, and relations with the school board. Although there were some statistically significant differences by gender and race, none reached the level of practical significance, accounting for, at most 1% of the variance. While the responsibilities and complexity of the position do not seem destined to change, we are hopeful that studies such as this one will draw attention to the need to bring attention to common stressors that affect people in the position of superintendent.

In regards to the health and well-being of our superintendent sample, we found that the illnesses that were reported by the largest percentages of superintendents -- high cholesterol, high blood pressure, obesity, gastrointestinal problems, insomnia, anxiety, sleep apnea, and chronic headaches -- are attributed by superintendents to high levels of stress. The relationships between the number of medical conditions and the level of day-to-day stress reported by the superintendents was $r = .3$, a moderate relationship which indicates that superintendents believe that their level of health and their stress levels are related. Overall, we found very few gender or race differences in stress and health levels.

This study's findings regarding health conditions due to intense and prolonged stress highlights the need for introducing coping mechanisms as well as health and wellness programs for people currently operating in the position of superintendent. "We must help those who are suffering but we must do more by preventing distress where we can and building on positive, strength factors where possible" (Rossi, Quick, & Perrewe, 2009).

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