

SECONDARY TRAUMATIC STRESS: PERVASIVENESS AND CONTRIBUTING
FACTORS IN SCHOOL PERSONNEL

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DEDICATION

This dissertation is dedicated to my friends and family who have supported me as I have pursued my degree, especially my parents Jane and Brent Klemme, and husband Daniel Posey. I would further like to dedicate this dissertation to the school personnel who were gracious enough to complete the survey and allow us to learn more about secondary traumatic stress.

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SECONDARY TRAUMATIC STRESS: PERVASIVENESS AND CONTRIBUTING
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The study aim is to identify pervasiveness and factors leading to secondary traumatic stress (STS) in school personnel to increase awareness of the need for support and help for school personnel who are affected by STS. School personnel is defined in this study as all personnel employed by schools and includes, teachers, administrators, staff, resource officers, custodians, lunch aids, bus drivers, nurses, social workers, etc. School personnel work together to support students and ensure that they learn not only educational material, but also social and emotional skills. They also provide a sense of safety for students. School personnel are tasked with providing seven hours of daily support to their students; however, lack of supports, constant stressors, and exposure to secondhand accounts of trauma, put school personnel at risk for STS. This dissertation includes a review of STS in school personnel, theory used to inform and understand STS, a systematic review of STS in school personnel, a cross-sectional study of STS in school personnel from a Midwestern County, and integration of findings including practical implications and need for future research.

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LIST OF ABBREVIATIONS

STS	Secondary Traumatic Stress
PTSD	Post-Traumatic Stress Disorder
CF	Compassion Fatigue
ProQOL	Professional Quality of Life Scale
STSS	Secondary Traumatic Stress Scale
DSM-IV	Diagnostic and Statistics Manual-Fourth Edition
DSM-V	Diagnostic and Statistics Manual-Fifth Edition
NASW	National Association of Social Workers
SDH	Social Determinants of Health
ACEs	Adverse Childhood Experiences
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
STS-OA	Secondary Traumatic Stress Organizational Assessment
NIOSH	National Institute for Occupational Safety and Health

Chapter One: Background

Secondary traumatic stress (STS) is a biopsychosocial condition that has been studied in professions and disciplines including child welfare workers (Strolin-Glotzman et al., 2020), mental health providers (Cieslak et al., 2013), nurses (Beck, 2011), social workers (Bride, 2007), and juvenile justice workers (Hatcher et al., 2011). However, there has been less emphasis on exploring STS in school personnel. This dissertation will explore: the background of STS in school personnel (Chapter 1); theory used to frame this issue of STS in school personnel; gaps in the literature; and relevance to Social Work (Chapter 2); extant literature through a systematic review (Chapter 3); a quantitative study exploring factors that increase or decrease STS (Chapter 4); and integrate findings from the literature and quantitative study to provide practical implications and potential for future studies (Chapter 5).

School personnel work together to support students to ensure that they learn not only educational materials, but also social and emotional skills. Personnel are also tasked with providing a sense of safety for students. School personnel provide six to seven hours of daily educational time with their students; however, the lack of various kinds of support, constant stressors, and exposure to secondhand accounts of traumas put school personnel at risk for STS.

Secondary traumatic stress can be defined as the second-hand exposure to trauma(s) that occurred to another individual, and results in post-traumatic stress disorder (PTSD) like symptoms (Figley, 1999). The symptoms for STS include intrusive thoughts, avoidance behaviors, negative cognitions, and hyperarousal. Secondary traumatic stress differs from PTSD in that STS symptoms occur because of a secondhand exposure rather

than a primary exposure (Bride et al., 2004). The cause or exposure is different between STS and PTSD, but the reactive symptoms are the same. STS is conceptually different from PTSD, but both concepts are derived from trauma theory (Sprang et al., 2019). The relationship of STS to PTSD is further discussed in the theory section of this dissertation (Chapter 2).

Conceptual Underpinnings

Secondary traumatic stress was initially referred to as “secondary catastrophic stress reactions” by Figley (1983). Figley’s work looked at the experience of family members after trying to support loved ones who experienced traumatic events. Figley stated, “the empathic induction of a family member’s experiences results in considerable emotional upset” (Figley, 1983). Secondary traumatic stress reactions were coined to describe the supporter’s (in this case the family member) response due to the emotional connection with the person who experienced the trauma or catastrophe (Figley, 1983). This initial conceptualization encompassed the empathetic connection between the victim and supporter as well as the psychological and somatic symptoms such as: illnesses, sleeplessness, increased startle response, and forgetfulness. These are symptoms that are often associated with PTSD (Figley, 1983).

However, by 1995, Figley also stated that the term compassion fatigue (CF) and STS could be used interchangeably (Figley, 1995). This has led to some dissention among researchers about the conceptualization of STS. STS has been used interchangeably with CF in research (Borntrager et al., 2012; Figley, 1995) but there have also been authors who challenge the notion that CF and STS are the same construct. Stamm (2010) conceptualized and operationalized STS as a subcategory of compassion

fatigue where STS was focused on the symptoms resulting from the work-related stressful or traumatic exposures. This was based on research from Figley (1995) (CF), Stamm (2010) (STS) and Pearlman (1995) (vicarious trauma) during the 1980s through the 2000s (Stamm, 2010). However, there was no element of the “emotional connection” associated with STS in this conceptualization, but rather the CF term encompasses emotional connection originally identified by Figley decades earlier. Thus, STS may be viewed as a subcategory of CF according to Stamm; however, at this point STS is exclusively looking at the symptom expression. It should also be noted that the STS conceptualization put forth by Stamm does not explicitly tie these symptoms to PTSD symptoms. However, Stamm did recognize that some of the negative symptoms associated with STS overlap with burnout, depression, and PTSD (Stamm, 2010).

Stamm’s operationalization of STS is found in the Professional Quality of Life scale (ProQOL) and compassion fatigue has two subscales: STS and burnout. Stamm (2010) reported that the relationship between the subscales is not fully understood, and the subscales have collinearity issues. The ProQOL was initially created to assess compassion fatigue and its elements in therapists; although, many other professions have used the measure. Ultimately there is an issue with Stamm’s conceptualization of STS in that there is no clear conceptual definition put forth for STS; and the framework is mostly focused on compassion fatigue.

Table 1

Secondary Traumatic Stress Conceptual Differences and Similarities between Stamm and Bride

Stamm, 2010	Similarities	Bride et al., 2004

Secondary Traumatic Stress is a negative feeling driven by work and fear” (Stamm, 2010, p. 8)	Derived from Figley’s work	Second-hand exposure resulting in PTSD like symptoms (Figley, 1999)
Does not include subcategories for symptoms.	Symptom expression based on secondary exposure	Includes subcategories intrusion, avoidance, arousal.
Symptoms include fear, sleep difficulties, intrusive images, or avoiding reminders of the person’s traumatic experiences, and excludes exhaustion, frustration, anger, and depression.	Avoidance and intrusion symptoms overlap between both conceptualizations.	Intrusion Avoidance arousal
Symptoms compiled by research from Figley, Stamm, and Pearlman	These symptoms arise due to secondary exposure.	Symptoms based on DSM-IV PTSD Criterion (American Psychiatric Association [APA], 2000)

STS is a subcategory of compassion fatigue		STS is its own construct, independent of compassion fatigue
Professional Quality of Life Scale (ProQOL) STS subscale	Both have operationalized the concepts	Secondary Traumatic Stress Scale (STSS)

Alternatively, Bride et al. (2004) used Figley's description of STS as PTSD symptoms including intrusion, avoidance, and arousal arising from a secondary exposure to operationalize STS as such. The secondary traumatic stress scale (STSS) was created based on the DSM-IV symptoms of PTSD; however, Bride et al. attempted create the measure so that it would be sensitive to the secondary exposures rather than the primary exposures. Ultimately like Stamm (2010), this results in STS being conceptualized as the symptoms related to a secondary exposure and are based on Figley's research. However, there are differences between the two conceptualizations. Bride viewed STS symptoms as parallel to PTSD symptoms and did not incorporate CF into the conceptualization of STS. Essentially, STS is its own construct independent from CF. Stamm, however viewed STS as a component of compassion fatigue and did not explicitly view the symptoms as mirroring PTSD symptoms. Table 1 displays compares Stamm and Brides conceptualizations of STS. It is important to be aware of the various conceptualizations and operationalizations of STS, because they ultimately impact the interpretation of results, which will be seen in Chapter Three (the systematic review). Stamm developed the most recent ProQOL, and Bride created the STSS. Unlike the ProQOL, the STSS is a

stand-alone construct and is derived from the symptom expression of PTSD. Because STS does not have one agreed upon conceptualization, or operationalization (ProQOL vs. STSS) there is a risk that what appears as a risk factor or protective factor for one measure, may not show any significance with the other measure. This leads to contradictory findings and furthers confusion around STS. The remainder of this dissertation will be applying the conceptualization as identified by Bride et al. (2004) due to a clearer conceptualization and operationalization of STS.

Study Aim

This study aims to identify STS pervasiveness and contributing factors in school personnel using STS as the conceptual basis. To date, there have been mixed findings in research related to STS in school personnel with most assumptions around STS in school personnel being derived from findings of other disciplines or based on qualitative findings with small sample sizes and mixed conceptualizations of STS (Lawson et al., 2019; Rankin, 2020). Hence, there is a need for a comprehensive understanding of STS in school personnel supported by quantitative data using standardized scales. To this end, a systematic review was conducted to assess pervasiveness of STS in school personnel and identify factors that are or are not associated with STS. Additionally, a cross-sectional study was conducted to add to the body of knowledge about STS in school personnel. By accomplishing the systematic review, knowledge is synthesized and critiqued which sheds light on gaps in knowledge and identifies contradictory findings. The cross-sectional study adds to the research base factors which impact STS, including factors that have not been explicitly studied empirically in school personnel. The aim of this dissertation is to assess pervasiveness of STS in school personnel and explore factors

which impact the likelihood of STS in this population to expand the knowledge base around STS in school personnel.

Research Questions and Hypotheses

There are multiple research questions answered in different chapters. Chapter three undertook a systematic review of the STS empirical literature in school personnel which addressed: 1) What was the pervasiveness of secondary traumatic stress in school personnel? and 2) What factors increased or decreased the likelihood of STS in school personnel?

RQ1: What was the Pervasiveness of secondary traumatic stress (STS) in school personnel?

H1: most participants in the studies assessed would indicate average or mild levels of STS.

The first hypothesis regarding pervasiveness anticipated average levels when studies use the ProQOL or mild levels of STS when using the STSS. This is due to STS being believed to be normally distributed and most participants falling in these categories. It was believed that most of the participants would have some STS symptoms, but symptoms would not be frequent or intense enough to it interfere with daily functioning.

RQ2: What factors increased or decreased the likelihood of STS in school personnel?

H2: Risk factors such as a history of trauma, high exposure rates, and fewer years of experience were hypothesized to be associated with higher levels of STS.

History of trauma was believed to be associated with higher levels of STS because of the considerable overlap of STS and PTSD symptoms. High exposure rates were also anticipated to be associated with higher levels of STS. Multiple secondary traumas were expected to have a cumulative impact on the stress response, thus people with more exposure are at a greater risk for STS. Those with fewer years of experience were also expected to have higher levels of STS. It was expected that those with fewer years' experience were still learning their positions and adapting to the stressors that come with the position.

H3: Personnel with high peer support would have a decreased level of STS.

It was expected that those with support, particularly within the school would have lower levels of STS because they would not feel isolated as those who lack peer support.

H4: Supervisory support would not be a significantly related to lower STS.

Supervisory support has been found to be associated with lower levels of STS in other fields like child welfare, but because of the way schools are structured, it was not expected to play a major role with STS.

H5: Personal support would be associated with lower STS.

Those with strong supportive personal supports such as spouses and friends were anticipated to have lower levels of STS, because other areas of life outside of work were more stable and supported.

Chapter four undertook a cross-sectional study exploring STS in school personnel within a midwestern county.

RQ1: How pervasive was STS in school personnel within the Midwestern County?

It was known that there was a higher incidence of child abuse and neglect in this county in comparison to the state or national average. The likelihood of exposure to secondary trauma was increased for this county's school personnel.

H1: There would be a moderate STS in school personnel.

It was believed that since there is such a high incidence of neglect and abuse within this county, that the STS levels would be like that of what is seen in child-welfare.

RQ2: What factors increased/decreased the likelihood of developing secondary traumatic stress symptoms in school personnel? The domains explored included social determinants of health (SDH), trauma, work factors, and supports.

H2: For the SDH domain it was expected that females, younger ages, lower income, lower education, and higher extended Adverse Childhood Experiences (ACEs) would be associated with higher levels of STS based on findings from other studies.

H3: For the trauma domain it was hypothesized that those with exposure to trauma and then trauma related symptoms were more likely to have higher STS.

H4: The work factors included teachers, elementary school workers, fewer years in position, fewer years with current employer, and higher work hazards would be associated with higher STS.

H5: It was also hypothesized those receiving less supervisor, peer, and personal support would be associated with higher levels of STS.

Dissertation Structure

This dissertation followed the format set by the Indiana University Graduate School in conjunction with the Indiana University School of Social Work. This initial chapter provided a general overview of STS in school personnel, conceptual underpinnings, study aim, and the research questions and hypotheses which will be presented in chapter three and four. The next chapter will provide theoretical context for STS in school personnel, this context will then be applied to the remainder of the chapters. Chapter three and four are interrelated in that the third chapter assesses the quantitative STS research that has been conducted on school personnel through a systematic review and highlights many of the inconsistencies and findings about STS thus far in personnel. The fourth chapter, then, provides a description of a quantitative study conducted to address some of the gaps highlighted in the third chapter and identify additional factors that increase or decrease STS in school personnel. The fifth chapter integrates the findings of the third and fourth chapters and identifies additional gaps and need for additional research as well as practical implications.

Secondary traumatic stress is an under researched phenomenon in school personnel, that needs to be explored (Rankin, 2020). The second chapter provides context and theory around manifestations of STS, risk factors for STS, ways in which theory and social work practice apply to this dissertation.

Chapter Two: Exposure, Theory, and Gaps

Toxic stress can be caused by “strong, frequent, and/or prolonged adversity” (Center on the Developing Child, 2019). Stress is a broad term that encompasses the biological response (acute and chronic) to various stimuli. A toxic stress response occurs when the biological stress response is engaged for an extended period without adequate resources (intrinsic and extrinsic) or supports to decrease the stress response; thus, causing emotional, physical, and/or psychological distress. The two main forms of toxic stress addressed in this dissertation are trauma and secondary traumatic stress. Trauma is conceptualized as a perceived life-threatening situation which occurred to an individual causing emotional, psychological, and/or physical injury affecting the individual’s well-being (SAMHSA, 2014). Trauma causes a toxic stress response with potentially chronic implications. To understand STS, one must be aware of the pervasiveness of childhood trauma since school personnel are at risk to exposure of trauma disclosures. This section explores the initial exposure for secondary traumatic stress response, relevance to social work, stress theory and the diathesis-stress model, and gaps in the literature.

Trauma Exposure

Finkelhor et al. (2009) conducted a cross-sectional nationally representative study (N=4549) and reported just over 60% of children and youth had experienced at least one direct or witnessed victimization within their family, school, or community within the past year. Exposure to poverty, loss, community violence, violence, abuse, neglect, and other stressors can impact youth’s ability to perform academically, impact student’s health and mental health, and interfere with the student’s ability to regulate emotions and behaviors (Anderson et al., 2015; Jaycox et al., 2012; Wadsworth et al., 2008).

School personnel are exposed to children who have experienced adversity. School personnel are the most common reporters of abuse and neglect with 19.4% of the allegations (Child Welfare Information Gateway, 2021). School personnel include teachers, administrators, staff, resource officers, custodians, lunch aids, bus drivers, nurses, and social workers, etc. VanBergeijk (2007, in press) reported that urban school personnel suspect an average of 92 cases of child maltreatment throughout their careers. While individual student trauma is prevalent, additional traumas that students can be exposed to include poverty, racism, family, and community violence (Astor, 1998). Exposure to trauma can be at the individual, family, and the community levels.

Social Work

Social workers are in a prime position to identify and implement proactive and responsive strategies to support personnel. The National Association of Social Workers (NASW) code of ethics indicate six core values; however, the following will focus on two core social values: service and the importance of human relationships. With service, the main goal for social workers is to address social problems (NASW, 2021). STS affects many social workers and school personnel; it is a social problem. Social work as a profession can explore how the environment impacts a person. The NASW (2018) stated that school social workers act as a “liaison between school, home, and the community.” When exploring the implications of the exposure to STS, one needs to consider what role the environment plays in increasing or decreasing risk factors associated with STS. The school and community where personnel are positioned could potentially increase or decrease the likelihood of a secondary trauma exposure as well.

According to the NASW occupational profile for school social workers (2010), one of the listed descriptors of the job description included “providing trainings and workshops to teachers, school staff and parents” (p.1). The description goes on to highlight the expectation of working with a multidisciplinary treatment team. Thus, school social workers can work with the school and at minimum provide education regarding STS; although, leveraging knowledge to impact policy and structures that increase the risk for STS development is also critical.

A limitation is the shortage of school social workers. The NASW reported that the ideal ratio of school social worker to students is one school social worker to 250 students, although when serving schools with students who have additional emotional and/or behavioral needs the ratio should be one social worker per fifty students (NASW, 2018). This is where the value of human relationship arises. Social workers recognize when working with issues like trauma and stress, it is important to develop and maintain relationships with students, personnel, and parents. Focusing only on the students and not providing support for personnel is a current gap in services that not all school social workers fill. Additionally, school social workers may be tasked with providing additional support for school personnel experiencing STS. Thus, school social workers are expected to provide support for personnel experiencing STS while being in the same environment and exposed to secondary traumatic stress themselves which makes them susceptible to STS. Personnel work within an environment that may increase or decrease their chances of developing STS. The next section describes a biopsychosocial theory to understand STS.

Understanding Stress

Stress theories are often attributed to the work of Hans Selye (1956); however, Cannon is credited as the first person to describe fight or flight, and the effects an aroused state has on the body (Selye, 1956). Drawing from Cannon's work, Selye explored arousal states and the sympathetic nervous system. This system responds to threats and stimuli in the body.

During Selye's conceptualization of stress and stressors, one important concept was the need for stability in the body. Homeostasis ensured the body was able to manage stressors and level back out to normal (Selye, 1956). However, Selye saw that sometimes the body increased in arousal states for long periods of time. Selye studied adrenocortical enlargement, thymic lymphatic involution, and intestinal ulcers which ultimately led to the conceptualization of the general adaptation syndrome (GAS) in 1936 (Selye, 1956). GAS gave rise to what is now recognized as stress theory.

Selye initially described stress as the "rate of wear and tear on the body" (Selye, 1956, p. 5), but at the time of his research, he was unable to quantify wear and tear. Selye then defined stress as "the non-specific response of the body to any demand" (Selye, 1956, p. 55). It is important to be aware that stress is a response in the body reacting to the outside demands or "stressor." A stressor is simply something that causes a stress response (Selye, 1956). Stress and stressors often have negative connotations, but stressors and stress are needed for everyday life. A positive form of stress could be something like the excitement felt when meeting new students for the year. A detrimental stressor could be a novel virus pandemic that interferes with the school's ability to

provide an in-person education. Both are stress responses but may elicit different feelings.

Stress in small or moderate amounts can be beneficial for one's health. However chronic or long-term stress can have negative effects. When the stress response is heightened for long periods of time, there are health implications. Essentially chronic stress causes wear and tear physically. As previously mentioned, Selye (1956), initially altered his definition of stress so he could quantify the phenomenon. By 1993, McEwen and Stellar assessed a construct coined allostatic load which is like Selye's description of wear and tear. Allostatic load is defined as "the cost of chronic exposure to fluctuating or heightened neural or neuroendocrine response resulting from repeated or chronic environmental challenges that an individual reacts to as being particularly stressful" (McEwen & Stellar, 1993). Essentially McEwen & Stellar were able to quantify chronic stress's wear and tear on the body. They noted that homeostasis is not sufficient in accounting for the effects of chronic stress on the immune and cardiovascular systems. Rather than having a constant and consistent state, they noted that the biological processes fluctuate. This fluctuation was termed allostasis.

Stress theory encompasses the continuum of stress responses that the body produces depending on the stressor (stimuli). The body responds to stressors through the sympathetic nervous system. The sympathetic nervous system is activated by the amygdala which is the alarm center which plays a role in a fear and anxiety response (Davis, 1992). The amygdala activates a cascade of various structures (Hypothalamic Pituitary Adrenal-axis among others) and hormones (ACH, ATCH, cortisol, epinephrine, etc.) (Goldstein et al., 1996). Sometimes this may be referred to as the fight, flight, or

freeze response. This response increases respiration and heartrate while simultaneously decreasing the activation of the parasympathetic nervous system (e.g., rest and digest response) (LeBouef et al., 2021). During the fight or flight response, one can anticipate increased respiration and heartrate and a decrease in bodily functions such as digestion and possibly the immune response (LeBouef et al., 2021). In addition to the body's reaction to the stressor, the brain is less focused on executive functioning like planning or anticipating consequences. Once the body acquiesces to the stressor, the body shifts to increasing the parasympathetic nervous system (rest and digest) and decreases the sympathetic nervous system activation (LeBouef et al., 2021). These two systems when functioning as they should, balance one another.

The biological response to stress, specifically trauma and challenging adversities have implications. In the presence of a trauma related disorder such as PTSD there can be biological changes in structures that can impair functioning. Luo et al. (2016) found that trauma could impact structures in the brain (hippocampus and amygdala) while Kim et al. (2013) found that poverty and chronic stress impacts the pre-frontal cortex's ability to regulate the amygdala. Memory and cognitions can also be impacted by high stress (Quinn et al., 2009).

Much of stress theory focuses on the body's response to stressors; however, McEwen & Stellar heavily emphasized that everyone's stress response is a culmination between their environment and genetic predisposition. Individuals' predispositions and environment affect not only the stress response, but the likelihood of disease. While Selye noted that there is a relationship between stress, the immune response, high blood pressure, and health outcomes; it was not until the 1990's and 2000's that empirical

evidence supported the link between stress and immune system in humans (Felitti et al., 1998; McEwen & Stellar, 1993; Padgett, & Glaser, 2003). Selye's contributions to stress theory with the findings from McEwen & Stellar supports that the body responds to its environmental stressors and that the aggregated stress response has long term health and mental health implications. However not everyone who are exposed to challenging stressors have health and/or mental health issues. The Diathesis-Stress Model provides and explanation for the variation in stress responses among people.

Diathesis-Stress Model

There have been many theories and models derived from stress theories. The diathesis-stress model is used to comprehend factors that reduce or increase the risk for the development of STS. This model is being utilized because it is a biopsychosocial model of stress, and it has been researched extensively within the context of mental health. A biopsychosocial theory is appropriate to use in social work because it can incorporate biological underpinnings and recognize biological and environmental factors interact. The diathesis-stress model provides a comprehensive approach to understanding why people may have different responses to the same form of adversity.

Exposure to primary trauma has been discussed; however, what makes some personnel exhibit symptoms of secondary traumatic stress, while others do not display symptoms despite secondary exposures to adversity? To capture this nuance, the diathesis-stress model is used to provide a better understanding of the factors that increase one's likelihood for STS symptoms. The diathesis-stress model is a biopsychosocial model which can account for genetic predisposition including the role of epigenetics, the diathesis part of the model. The term diathesis simply refers to

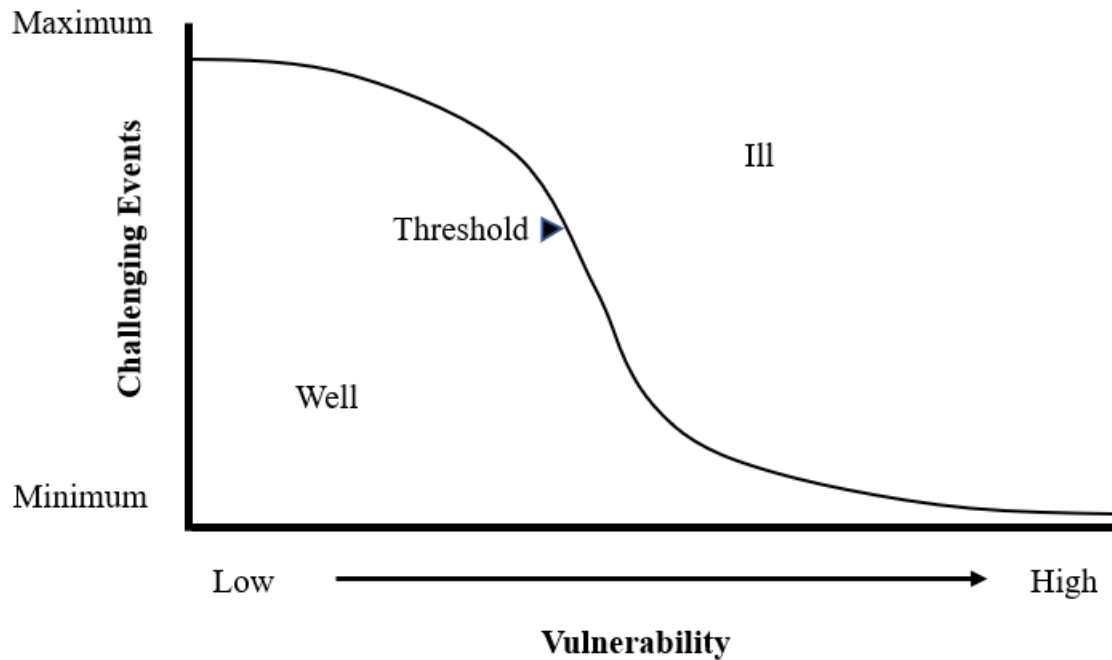
predispositions (Van Heeringen, 2012). The stressors or increased vulnerabilities from the social and environmental factors in combination with the predisposition cause stress and lead to various manifestations of psychological disorders among other health issues (Gottesman and Shields; 1972; Meehl, 1962).

The diathesis-stress model has been used to account for various forms of mental illness such as depression and schizophrenia, (Meehl, 1962; Monroe & Simons, 1991), PTSD (McKeever & Huff, 2003), suicidal ideation (Van Heeringen, 2012), and STS (Perino, 2016). The diathesis-stress model has some basic tenants to inform why some people express mental health issues or in this case STS. Figure 1 displays how vulnerabilities such as genetic predispositions, cognitive, and social predispositions put people at greater risk for mental health issues when faced with challenging events: adverse events, trauma, or secondary trauma exposure (Zubin & Spring 1977). Those who fall under the threshold are healthy (those with fewer predispositions and fewer challenges), and lack STS symptoms whereas, those who surpass the threshold exhibit STS symptoms to the point where the symptoms interfere with one's life.

Ultimately the expression of STS symptoms results from a combination of biological predispositions, various stressors, and secondary trauma exposure(s). However, one's vulnerability could be reduced when there are adequate supports and resources present. Figure 1 shows that a larger quantity of challenging events or magnitudinous challenging event(s) put people at a greater risk for illness or in this case STS. For STS to occur, a secondary exposure must be present; thus, there is already at least one potentially challenging event a person is exposed to.

Figure 1

Diathesis-Stress Model Threshold



(Adapted from Zubin & Spring, 1977)

In addition to the secondary exposure, other stressors increasing vulnerability could include social determinants of health (SDH), history of primary trauma, work hazards, and a lack of social supports which further increase the likelihood of STS exhibited. For this dissertation's model, secondary exposure to adversity is a challenging event while SDH, history of trauma, work hazards, and a lack of social supports increase one's vulnerability for STS symptoms. These vulnerabilities are further described in this section and are the main domains for the cross-sectional study in chapter four.

Social Determinants of Health

Social determinants of health (SDH) can be viewed as systemic, contextual, challenges and exposures that put individuals at greater risk for health and/or mental health issues. Within stress theory, social determinants of health can be considered a

vulnerability because of the short-term and long-term impacts on health and mental health. According to the World Health Organization (WHO), social determinants of health “are the non-medical factors that influence health outcomes. They are the conditions in which people are born, grow, work, live, and age” (2008). SDH domains identified by the Office of Disease Prevention and Health Promotion (ODPHP, n.d.) include education access and quality, health care and quality, neighborhood and built environment, social and community context, and economic stability. Each of these domains has a relationship with health and mental health outcomes.

While there are limited linkages to SDH and STS, there have been multiple studies that link STS to specific aspects of SDH. One of the domains of SDH is economic stability. Quinn et al. (2019) found that higher income was associated with lower STS (identified using STSS) in a sample of clinical social workers ($N=107$) from a Southeast state. The study did not address STS in school personnel so it is unclear whether income may be associated with STS in school personnel.

Another SDH domain is social and community contexts. This domain includes aspects such as exposure to discrimination and personal relationships with family, friends, co-workers, and community members. Gender discrimination was studied by Rankin (2021) who identified that females were at a higher risk for developing STS in a national survey ($n=158$). This study was not without limitations given that convenience and snowball sampling were used. The disproportional ratio of male (24.1%) to female (75.9%) could have potentially skewed the results. Additionally, the females’ mean score was identified as an average level of STS while the males’ mean score fell into the low category. Both genders scored average or lower for STS. The survey used the ProQOL

subsection of STS; therefore, there is less ability to establish if the STS symptoms met the threshold for STS since the ProQOL was not constructed based on PTSD symptoms and therefore less sensitive than STSS.

Relationships with friends, family, peers, and community are also considered a SDH in the social and community context domain. A seminal article published by Felitti, et al. (1998) linked childhood adversity in adults with long-term health and mental health outcomes ($N=8,506$). The Adverse Childhood Experiences (ACEs) explored domains that included various forms of abuse, household dysfunction, neglect, and domestic violence. An increase in the number of adversities was also found to increase health risk behaviors and diseases in adulthood. Anda et al., (2006) found a dose response in ACEs were associated with higher risk to several adverse health and mental health outcomes such as but not limited to substance use, affective and somatic disturbances, impaired memory, and difficulty controlling anger ($N=17,337$).

Simon (2019) found that ACEs were positively associated with STS ($N=150$). The participants were from six urban public charter schools and worked in schools with children in kindergarten through eighth grade. However, fewer than 16% of the respondents indicated high levels of STS. There was an association between ACEs and STS, but the number of participants who indicated high levels of STS was small. The ProQOL was used for this study which also limits the ability to assess the amount of distress and specific criteria met. For instance, the ProQOL has only three categories for STS: low, average, and high. These categories are based on percentile cutoffs and lack the ability to translate to the categorization of the symptoms. The STSS, on the other

hand, has low/no STS, mild, moderate, high, and severe, where the moderate, high, and severe are indicative of clinical significance (Bride et al. 2007).

The original ACE study captured childhood abuse and family adversity but lacked the peer and community aspect of the social and community domain. The Philadelphia Extended ACE Study came to fruition in 2012/2013 began assessing for more community level adversities experienced in childhood including: witnessed violence, felt discrimination, adverse neighborhood experience, experience being bullied, and lived experience in foster care. This study had more diverse sampling and studied the urban population in Philadelphia. Cronholm et al. (2015) found that in a study with over 1500 participants, 72.9% had at least one adverse childhood experience within the family and 63.4 % had at least one extended ACE (peer and community adversity) with nearly 50% experiencing both the ACE and extended ACE. Social determinants include community contexts experienced during childhood can impact adulthood. Social and Community adversity experienced as a child can be considered a predisposition, increasing vulnerability, and putting people at a higher risk for STS.

Trauma

In addition to SDH, another form of toxic stress associated with mental health is traumatic stress. Trauma can be a form of toxic stress. The DSM-V describes trauma as: Exposure to actual or threatened death, serious injury, sexual violence in one or more of the following ways: 1) Directly experiencing traumatic events, 2) Witnessing, in person the event(s) that occurred to others, 3.) Learning that the traumatic event(s) occurred to a close family member or friend. 4.) Experiencing repeated or extreme exposure to aversive details of the traumatic events (American Psychiatric Association, 2013, p. 271).

This definition of trauma meets Criterion A in the DSM-V criteria for PTSD. A traumatic event does not always cause a toxic stress response that leads to PTSD. Directly experiencing traumatic events, witnessing the in-person events that happen to others, learning about events that happened to others, or experiencing secondary exposure will cause a stress response; however, for some the stress response may be tolerable meaning the distress eventually resolves with the passing of time, adequate supports, and resources, or the stress response remains activated a person may experience symptoms long after the initial exposure leading to toxic stress.

The trauma description above explains exposures that can put people at risk for symptoms such as intrusive thoughts, avoidance behaviors, negative cognitions, and hyperarousal. It should be noted that people can have experienced trauma exposures and have only some of these symptoms which would not meet criteria for PTSD since PTSD is a clinical disorder. To receive a PTSD diagnosis, the requisite criteria for intrusive thoughts, negative cognitions, avoidance behaviors, and hyperarousal must be met and there must be impairment of daily functioning in one's life (American Psychiatric Association, 2013). PTSD is a form of toxic stress, in that the symptoms are occurring well after the trauma exposure, and the prolonged physiologic response remains in the fight, flight, or freeze mode.

Criterion A as noted in the trauma definition listed above, includes the phrase "Experiencing repeated or extreme exposure to aversive details of the traumatic events" which by all accounts is describing a secondary exposure; however, the term "extreme" is relative and it is unclear what would qualify as extreme. There is much ambiguity when it comes to this caveat and there are varying views of STS's relationship with PTSD. Just

like not all those who experience a trauma develop PTSD, not everyone with a secondary exposure will develop STS. Even those with moderate, high, or severe levels of STS may or may not meet the PTSD criteria. The measures used for STS are for research and to capture STS, they are not diagnostic tools.

According to Rankin's (2021) study, a sample of teachers (n=158), who indicated they had a personal history of trauma reported significantly higher levels of STS than teachers without personal trauma. There was a statistically significant difference between participants who reported a personal history of trauma and those who did not; however, those without trauma on average indicated low STS and the mean for those with a personal history of trauma was average STS levels. There was only a limited number of the sample who indicated high levels of STS, so it is difficult to identify factors related to STS when few participants indicated high STS.

Additional studies in school personnel and other professions have found an association between trauma and STS (Hydon et al., 2015, Sprang et al, 2011). There is ambiguity in the literature when it comes to STS and trauma. For instance, trauma is a broad term that can encompass a life-threatening, body-threatening event, or psychologically threatening event but studies are inconsistent about whether it is primary exposure to such an event that increases the likelihood of STS (Hensel 2015, Rankin, 2021) or if it is the exposure along with additional symptoms such as intrusive thoughts, avoidance behaviors, negative cognitions, and hyperarousal which increase the likelihood of STS. Most studies assessing trauma only look at the dichotomous variable of trauma occurrence (Hensel, 2015), but lack whether the trauma exposure exists with additional symptoms. Because of the potential overlap of symptoms between primary and secondary

traumatic stress, it is important to assess the association between trauma and STS, particularly in school personnel.

Work Factors

So far vulnerabilities such as SDH and a history of trauma have been discussed as potential stressors for increased STS. Another vulnerability is the conditions in which one works. Work related stress is ideally temporary and tolerable; however, when work stress becomes chronically stressful, it falls into the toxic stress category. Chronic and extreme stress for work demands can negatively affect the mental health of personnel (Desrumaux et al., 2015). Branson (2020) found that teachers' workload, lack of time, and high expectations were identified as factors in increasing the likelihood of STS.

These were qualitative findings from a small sample of school personnel, so generalizability is unattainable. Von der Embse, Ryan, Gibbs, & Mankin, (2019) found that roughly 30% of K-12 teachers experienced clinical levels of stress that impaired functions in aspects of their daily lives. Hensel et al., (2015) found in a meta-analysis of 38 studies which did include teachers along with other professionals that higher occupational hazard exposure was associated with higher STS levels.

Additionally, many studies assess amount of experience in the job role and STS with the assumption that those who lack experience find the job more stressful than those with experience. Rankin (2022) did not find a significant difference between tenured (over 6+ years of experience) and non-tenured (less than six years of experience) teachers. Simon (2019) also did not find any statistical significance with teacher experience and STS. Another study (n=132) quantified tenured teachers as 4+ years and non-tenured teachers as less than 4 years but did not find a statistical difference in STS

scores based on tenure (Shoieb, 2020). There are a handful of studies that have shown no significant difference between tenured and non-tenured teachers; however, reported teacher turnover is particularly high within the first five years of experience (Young, 2018). Borntrager et al. (2012) found a weak significant correlation between intent to seek other employment and STS.

The level of school (elementary, middle, and high school) in which personnel work has also been found to be a risk factor for STS. One study found Elementary school teachers had a significantly higher amount of STS than middle or high school teachers ($N=115$). A limitation with this study is the items of standardized scales (ProQOL and STSS) were adjusted, combined and additional items were added. The altering of the measure and not using a standardized scale makes the results difficult to compare with other scores which use the valid and reliable versions of the ProQOL and STSS (Schepers, 2017).

Supports

When describing the diathesis-stress theory, vulnerability increases when adequate supports or resources are lacking. Support was a domain measured in chapter four with an emphasis on: supervisor support, peer support, and personal support. Peer support has been found to help mitigate the symptoms of STS and reduce symptoms of workplace stress (Shernoff et al., 2011). Hensel et al. (2015), found a negative weak correlation between work support and STS and social support and STS for various professionals. In a qualitative study, family social support and peer support with colleagues were identified as protective (Caringi et al., 2015). The Caringi et al. study explored contributing factors of school personnel ($N=15$) including teachers,

administrators, paraprofessionals, and social workers; however, a limitation is that these interviews were conducted after an STS training which could have potentially skewed the findings from this study. There is limited information when it comes to supervisor support. Craun & Bourke (2014) found that co-worker support, supervisor support, and personal support were all found to impact STS for professionals who work with sexual violence survivors. However, the Craun & Burke study was not looking at school personnel. Park & Pierce (2020) found that high supervisor support was negatively associated with high STS; however, this study was from child-welfare literature. This indicates that there is a need for further studies exploring STS and the three types of support (supervisor, peer, and personal).

A potential gap is the lack of knowledge about STS in school personnel. There is limited information of STS on teachers, but there is even scarcer information looking at other forms of school personnel. For instance, there are a few studies that measured STS in school personnel other than teachers (Rumsey, 2017; Santa, 2016). However, the sample sizes are moderate to relatively small. School personnel work with children and are at risk of exposure to secondary traumatic stress. It is important to be aware of to what extent does STS impact school personnel.

Gaps

SDH, trauma, work-hazards, and social support (or lack thereof) are stressors that can impact the development of STS after a secondary exposure. So far, SDH was explored with an emphasis on economic stability and social and community contexts. More information is needed to assess the relationship between SDH (a stressor that has been linked to negative health and mental health outcomes) and STS. The overlap

between symptoms and potential responses of primary trauma exposure reactions and STS was examined along with inconsistent findings on their association with one another. The inconstant findings between work factors and STS in school personnel were discussed. Lastly, the influence support has on STS and limited knowledge about various types of support within school personnel. The remainder of this section will highlight additional gaps and considerations not already addressed in the prior paragraphs.

Another gap is the ambiguity of STS and the conflation with compassion fatigue. This dissertation recognizes STS as a separate construct from compassion fatigue, burnout, and vicarious trauma. The use of STS as interchangeable with the terms potentially leads to misleading results and their interpretation. Much of the literature exploring STS has failed to distinguish the difference between STS and compassion fatigue (Branson, 2021; Christian-Brandt, Santacrose, & Barnett, 2020) or views STS as a component of compassion fatigue (Gomez, 2021; Grybush, 2021; Stamm, 2010). In this same vein, while Borntraeger et al., appeared to recognize STS as a specific form of PTSD; however, many articles only go so far as to state STS has PTSD-like symptoms. This shows that there is a need for further clarification between STS and PTSD. Additionally, literature needs to be strengthened by focusing on STS as its own construct and not using terms interchangeably.

Social workers are the most common mental health provider in the United States (Heisler & Bagalman, 2018). Social workers are in a prime placement to encourage proactive measures and interventions to reduce the likelihood of STS impacting school personnel. Understanding what factors contribute to STS development could provide further clarification on what modalities may be most useful when addressing STS. There

is a need to understand the prominence of STS in school personnel as well as an increased awareness for what factors increase one's vulnerability for STS.

To address some of these gaps, the next chapter is a systematic review exploring the quantitative literature about STS in school personnel within the United States In the systematic review, the pervasiveness of STS is explored along with factors that increase or decrease the likelihood of STS in school personnel.

Chapter Three: Pervasiveness and Protective Factors for Secondary Traumatic Stress in School Personnel, A Systematic Review

Secondary traumatic stress is defined as the second-hand exposure of a trauma(s) that happens to others, and results in post-traumatic stress disorder (PTSD)-like symptoms (Figley, 1999). Secondary traumatic stress (STS) has been studied in many disciplines and occupations including but not limited to child welfare workers (Strolin-Glotzman et al., 2020), mental health providers (Cieslak et al., 2013), nurses (Beck, 2011), social workers (Bride, 2007), and juvenile justice workers (Hatcher et al., 2011). School personnel are at risk for secondary exposure due to their frequency of contact with children and youth who are potentially vulnerable. The first study that focused on STS in school personnel was VanBergeijk and Sarmiento (2006), a qualitative study exploring child maltreatment reporting in school personnel (n=28). There have been many qualitative studies focusing on STS in school personnel; however, over 15 years after the first article about STS in school personnel, there is still relatively little known about how common STS occurs in school personnel and what factors increase or decrease the likelihood of STS.

Currently, there is a lack of consensus on STS conceptually, there are some researchers who view STS as a subcategory of compassion fatigue and others who view it as its own construct focusing more on PTSD symptoms after a secondary exposure. Each of these conceptualizations have their own operationalization of STS. For STS as a subcategory there is the ProQOL and for STS as its own concept with PTSD symptom is the STSS. The difficulty with having two common instruments rather than one leads to

more difficulty in translating and comparing the findings. This potentially leads to inconsistent results and an overall issue with the validity of STS.

This systematic review aggregates and assesses the existing quantitative literature regarding secondary traumatic stress (STS) in school personnel. There has been limited research on secondary traumatic stress in school personnel. The research questions to be addressed in this systematic review include: 1) What is the pervasiveness of secondary traumatic stress in school personnel? 2) What factors increase the likelihood of STS in school personnel? and 3) What factors decrease the likelihood of STS in school personnel?

This systematic review follows the preferred reporting items for systematic reviews and meta-analyses (PRISMA) checklist (Page et al., 2020) with JBI critical appraisal for cross-sectional studies (Moola et al., 2020).

Methods

A systematic review allows the researcher to explore the literature in a reproduceable way and critically analyze the existing studies. This systematic review follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline's structure (Moher et al., 2010) and studies were assessed using the JBI critical appraisal checklist. As of July 2021,, no systematic review has been conducted regarding school personnel and STS. This systematic review "Pervasiveness and Protective Factors for Secondary Traumatic Stress in School Personnel: A Systematic Review" is registered with PROSPERO (ID CRD42021245180). The study search itself was formulated by

using the population, identified exposure, comparison group, outcomes, time (PICO) format to determine inclusion and exclusion criteria (Riva et al, 2012).

Sample

The systematic review targeted quantitative studies with a focus on STS in school personnel. School personnel included teachers, principals, social workers, counselors, etc. Inclusion and exclusion criteria were developed prior to initial searches.

Inclusion Criteria

The studies included had to include school personnel as participants. School personnel referred to anyone who works for or is contracted through a school system. The school system refers to grades kindergarten through high school within the United States. This systematic review did not include schools for adult education or universities, and does not include studies focused on students, only the school personnel. Additionally, The study had to provide quantitative STS results. Due to inconsistent conceptualizations of STS in the literature, only quantitative studies or mixed methods using the Professional Quality of Life scale (ProQOL) or Secondary Traumatic Stress scale (STSS) were included so there was a consistent operationalization of STS. The studies included were peer reviewed.

Exclusion Criteria

This systematic review excluded studies with a focus on compassion fatigue, vicarious trauma, and/or burnout. Qualitative studies, perspective articles, grey literature, unpublished papers, and conference abstracts were excluded from this systematic review. Studies that took place outside of the United States were excluded due to other countries

potentially differing from the United States regarding issues, policies, and procedures within their education systems.

Search Strategy

The search strategy followed the PRISMA structure (Figure 1). The first database search was EBSCO with Medline, ERIC, Psychinfo, Socindex. Second database search was ProQuest, the third PubMed and last was google scholar. The key words were the same for each of the search terms “ab (school personnel OR teachers) AND ab (secondary trauma OR secondary traumatic stress)”. The key words were determined after doing multiple preliminary searches and determining the words and phrases that were inclusive of relevant articles. All articles that met the criteria mentioning school personnel (k-12) with secondary trauma in either the abstract and/or title were recorded in the initial search. Articles focusing on compassion fatigue, vicarious trauma, and burnout were excluded if STS was not mentioned in the abstract. Studies were excluded if the study’s location was outside of the United States. Additionally, if there were duplicates in the same database, then the duplicate was excluded; however, duplicates were initially included if they were from different databases. For instance, if one article was found in the EBSCO database, and the same article was found in Google Scholar, that article would be included in the initial relevant count for both EBSCO and google scholar. Initial search in Google Scholar was concluded when there had been no relevant articles in the prior 25 articles listed. Articles that were only found on Google Scholar were then checked to make sure they were in fact peer reviewed.

Data Collection

The data collection included title and article screening, followed by full text screening. During the full-text screening, 10% of articles were assessed by a second reviewer. While data is recommended to be extracted by a minimum of two people, it is acceptable to have one person extract data with a second person to check for accuracy and completeness (CRD, 2009).

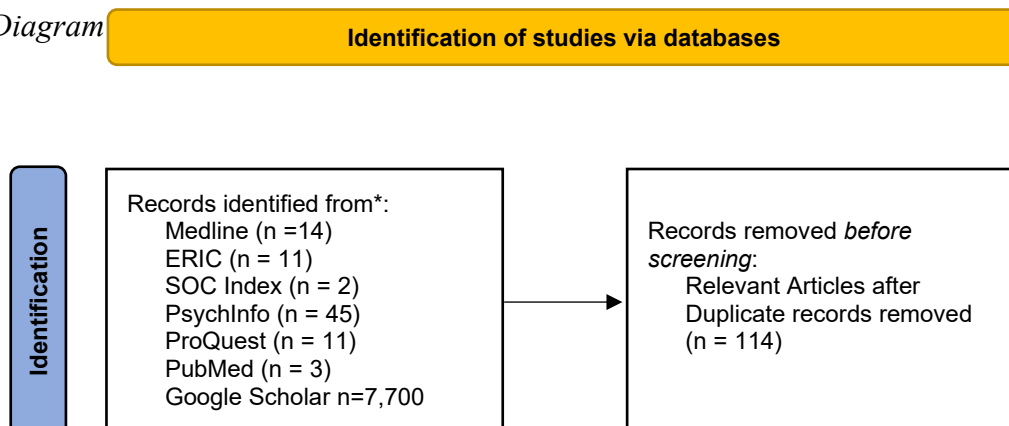
Quality Appraisal

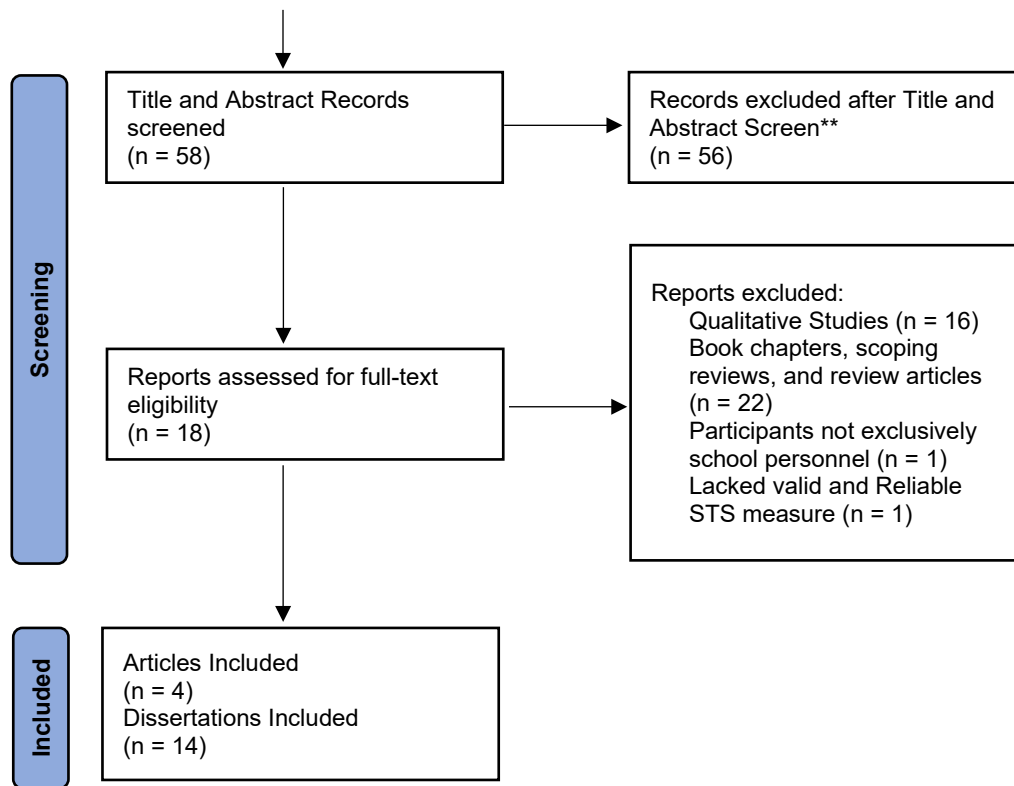
The studies in this systematic review included 17 cross-sectional design studies, and one longitudinal study. The JBI critical appraisal checklist for analytical cross-sectional studies was used as a quality appraisal assessment (Moola et al., 2020). One study was longitudinal and does not follow the cross-sectional design which is a limitation in using this form of evaluation. To address this issue, the STS mean, and standard deviation was used from time point two (December) for the first research question in this systematic review and the remainder of the criteria for the JBI cross-sectional design criteria was applicable for the study. The critical appraisal checklist summary can be found in Table 2.

Figure 2

Secondary Traumatic stress in School Personnel Systematic Review Prisma Flow

Diagram





(Chart adapted from Page et al., 2021)

Results

The initial search results yielded 114 relevant results. Fifty-six articles were then excluded based on the title/abstract screen leaving 58 articles that met the title/abstract screen criteria. During the full-text screen 40 articles were excluded. Sixteen of the full text excluded articles only focused on qualitative methods and the other 22 results included book chapters, scoping reviews, and review articles. An additional two articles were excluded after one was focused on adjacent topic but failed to report school personnel, and the other record excluded was due to self-created measure for STS which has not yet been validated. The full-text screen yielded 18 relevant results. Following the

screenings 18 studies met the inclusion criteria and utilized the Professional Quality of Life scale (ProQOL) or Secondary Traumatic Stress survey (STSS).

Study Characteristics

The 18 studies ranged from 6 to 450 participants (N = 2583 when combined). Seventeen of the studies were cross-sectional designs, and one longitudinal design. The longitudinal design was used due to the average secondary traumatic stress score remaining similar throughout the four timepoints (Vanderwill, 2021). The locations of surveys included Midwest (Anama-Green, 2020; Vanderwill, 2021; Wilson, 2020), West (Borntrager et al., 2012; Branson, 2021; Christian-Brandt, Santacrose, & Barnett, 2020; Hydon, 2016), Northeast (Santa, 2017; Shoieb, 2020), Southeast (Grybush, 2021; Simon, 2020; Steen, 2020) and nationally (Denham, 2019; Rankin, 2022; Steketee, 2020). Three articles did not provide a specific region within the U.S. (Gomez, 2021; Rumsey, 2017; Stevens, et al., 2020).

Most of the participants for each study were female ranging from 70.9% to 93.2%. Other descriptive information provided varied between studies. There are some studies that did not provide the descriptors, or they were categorized differently between studies. For the studies that included age as a continuous variable the means ranged from 39.9-45.6 years old. White participants comprised most of the sample ranging from 32.4% to 97.2% of the twelve studies that provided race descriptors. One study had a sample of Asian Americans (34.6%) which surpassed the white counterparts (32.4%), and had Latinx participants (24.3%) (Hydon, 2016). Studies that had white participants as the majority but had a second race making up over ten percent of the sample include: Borntraeger et al. (2012) with 20% of the sample identifying as Native American,

Christian-Brandt et al., (2020) with 15.3 % of Latinx participants, Grybush(2021) with 10.2% Black participants, Simon (2020) 32.4% Black participants, Steketee (2020) 15.3% Black and 12% Latinx participants, Stevens et al., (2020) 15.2 % Hispanic participants, and Vanderwill (2021) 16.7% Black participants.

Most of the studies only focused on teachers (Anama-Green, 2020; Branson, 2021; Christian-Brandt, Santacrose, & Barnett, 2020; Denham, 2019; Gomez, 2021; Grybush, 2021; Hydon, 2016; Rankin, 2022; Shoieb, 2020; Simon, 2020; Steen, 2020; Steketee, 2020). Two focused on school counselors or social workers (Rumsey, 2017; Wilson, 2020), and four explored various forms of school personnel (Borntrager et al., 2012; Santa, 2017; Stevens, et al., 2020; Vanderwill, 2021)

Table 2

JBI Checklist for Analytical Cross-Sectional Studies

	<i>1. Were the criteria for inclusion in the sample clearly defined</i>	<i>2. Were the study subjects and the setting described in detail?</i>	<i>3. Was the exposure measured in a valid and reliable way?</i>	<i>4. Were objective, standard criteria used for measurement of the condition?</i>	<i>5. Were confounding factors identified?</i>	<i>6. Were strategies to deal with confounding factors stated?</i>	<i>7. Were the outcomes measured in a valid and reliable way?</i>	<i>8. Was appropriate statistical analysis used?</i>	<i>Total score out of eight-items</i>
Anama-Green, 2020	No	No	Yes	Yes	Yes	No	Yes	Yes	5
Borntrager, et al., 2012	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	7
Branson, 2021	Yes	Yes	Yes	Yes	No	No	Unclear	No	4
Christian-Brandt et al., 2020	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	7
Denham, 2019	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	7
Gomez, 2021	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	7
Grybush, 2021	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	8

Hydon, 2016	No	Yes	Yes	Yes	Yes	No	Yes	NA	5
Rankin, 2022	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	7
Rumsey, 2017	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	7
Santa, 2017	Yes	Yes	Yes	Yes	No	No	Yes	NA	5
Shoieb, 2020	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	7
Simon, 2020	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	8
Steen, 2020	No	Yes	Yes	Yes	Yes	NA	Unclear	Unclear	4
Steketee, 2020	Yes	Yes	Yes	Yes	Yes	No	Yes	No	6
Stevens et al., 2020	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Unclear	6
Vanderwill, 2021	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	7
Wilson, 2020	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	7

Measurement Scales

There were multiple scales used to measure STS or aspects related to STS. For the purposes of clarity, the results were assorted based on their measure of STS. Some secondary traumatic stress scales used include the secondary trauma self-efficacy scale found in Rumsey (2017) and the secondary traumatic stress Organizational assessment (STS-OA) found in Wilson (2020). The measures included in this systematic review focus on the Professional Quality of Life Scale (ProQOL) and the secondary traumatic stress scale (STSS). The ProQOL was derived to assess for compassion fatigue and comprises three subcategories: compassion satisfaction, burnout, and secondary traumatic stress (Stamm, 2010). This systematic review will only focus on the secondary traumatic stress subcategory (10-items, five-point Likert scale) results. The STSS is a 17-item, five-point Likert scale with three subcategories including intrusion, avoidance, and arousal (Bride et al., 2004). Most of the studies used the ProQOL or the STSS; however, Bontrager et al., (2012) and Hydon (2016) used both measures.

R1: How Pervasive is Secondary Traumatic Stress in School Personnel?

Weighted means were calculated for the studies using the ProQOL and the STSS. The ProQOL had two weighted mean outcomes. According to Stamm 2010, there are two ways to calculate the STS result. The first is by only focusing on the subcategory of STS. Nine out of sixteen studies chose to use this method to assess for STS (N=1065, M=23.7, SD=6.1, R= 22-28.4)) which is indicative of average STS (Stamm, 2010). The second way to calculate STS using the ProQOL is by summing all subcategories, four studies chose to report levels of STS this way (N=579, M=50.6, SD=7.4, R=49.4-52.37). The means results reported out this way are also indicative of average levels of STS (Stamm,

2010). The STSS weighted mean was calculated from six studies (N=1172, M=36.44, SD=12.9, R=20.8-51); as a reminder Bontrager et al., (2012) and Hydon (2016) used both the ProQOL and the STSS weighted means. The weighted mean from the STSS in school personnel is indicative of mild STS symptoms. Thus, studies that used the ProQOL indicated average levels of STS and the studies that used the STSS found mild levels of STS. Table 3 shows the two measurement tools used. There are two ProQOL rows due to there being two different ways of scoring STS using the instrument. The first row looks at the ProQOL STS subscale only which was the most common measure used. The second row displays the ProQOL total score which can also be used to score STS. This total score does include the two other subscales; however, Geoffrion et al. (2019) demonstrated unidimensionality in the construct with the recommendation a single score be used rather than subscales. This scoring method was the least used. The third row shows the STSS instrument.

Table 3

Secondary Traumatic Stress Descriptive Statistics

Scored Scale	# Of Studies	Participants	Mean	SD	Range
ProQOL STS subscale	9	1065	23.7	6.1	22-28
ProQOL total	4	579	50.6	7.4	49-52
STSS	6	1172	36.44	13	20-51

Some studies only presented frequencies and did not complete further quantitative analysis. For the most part these studies used mixed methods, and their findings and factors were qualitative which were not addressed in this systematic review (Branson, 2021; Santa, 2016; Steketee, 2020).

R2: What Factors Increase or Decrease Secondary Traumatic Stress in School

Personnel?

This section focuses on factors that may increase (risk factors) or decrease STS (protective factors). This section provides a brief description of the relevant studies and their findings along with statistical analysis used. The compiled results of risk factors' statistical significance can be found in Table 4 and protective factors can be found in Table 5.

Table 4

Secondary Traumatic Stress Risk Factors Assessed

Variables	Statistically Significant	Not statistically significant
Gender	Rankin, 2022; Shoieb, 2020	
Trauma	Rankin, 2022; Simon, 2020	Borntrager et al., 2012; Grybush, 2021
Years' Experience		Gomez, 2021; Shoieb, 2020; Rankin, 2022
Teacher	Gomez, 2021	Steen, 2020
Compounding Exposures/ Hazards	Rumsey, 2017; Simon 2020; Stevens et al., 2020	
Level	Shoieb, 2020	
Underserved School	Denham, 2019	Gomez, 2021
Seeking Other Employment	Borntrager et al., 2012	Christian-Brandt et al., 2019
Professional Distress	Steen, 2019	
Burnout	Anama-Green, 2020; Hydon, 2016; Steen, 2019; Grybush, 2021	Hydon, 2016

Differences

When examining findings, it is necessary to be aware of the statistical analysis conducted. This subsection focuses on differences within categories. This form of

statistical analysis presented in this subsection does not assess these variables' relationship with STS. This subsection establishes if there are significant differences within these variable categories which could be useful in future studies to assess relationships ultimately addressing the research question regarding factors that increase or decrease the likelihood of STS.

Denham (2019) used a t-test to assess STS (STSS) differences between blighted (n=88) vs. non-blighted schools (n=84). Blight was measured by the School Disrepair Index. The blighted schools had a statistically significant higher mean of 34.03 (SD=14.0) than non-blighted mean 20.80 (SD=13.4). This indicated that on average personnel in blighted schools experienced mild symptoms of STS while the personnel in non-blighted schools experienced little to no STS. A limitation of this study is lack of description of the sample and use of snowball sampling.

Gomez (2021) also used t-tests to assess differences in STS (ProQOL). This study found that there was no statistically significant difference in STS between title 1 and non-title 1 schools, and no statistically significant difference between teachers with less than five years of experience and those with over five years of experience. General education teachers (n=33) were found to have statistically significant lower rates of STS than all the other teachers (n=32). General education teachers were found to be in the low category and all other teachers were within the average category. A limitation is the interruption of COVID-19 and small sample size. Data collection began and then had to be adjusted due to the COVID-19 lockdown, particularly since data collection initially began prior to lockdown. Steen (2019) found that there was no statistical difference in STS between general education teachers (n=100) and special education teachers (n=160).

Shoieb (2020) found statistical significance in STS (ProQOL, n=132) between female and male participants where female indicated higher STS. Additionally elementary teachers had statistically higher STS scores than middle school teachers. However, there was no statistical significance between tenured (5+ years of experience) versus non-tenured (0-4 years of experience) teachers. This study reported the sampling strategy was simple random sampling; however, the description of the recruitment and sampling appeared to be convenience sampling. Steen (2019) found that there was no statistical difference in STS between general education teachers (n=100) and special education teachers (n=160).

Associations

This section focuses on studies that conducted correlations to assess associations between variables and STS. Anama-Green (2020) reported that STS (ProQOL) was moderately correlated with burnout (N=144) and STS was negatively moderately correlated with intrapersonal mindfulness. Hydon (2016) found that there was a significant moderate correlation between STS (ProQOL, n=136) and burnout and a weak negative correlation between STS and compassion satisfaction. However, the same correlations were analyzed using the STSS and there were no statistically significant findings. A concern is that in theory the STSS and the ProQOL are both measures for STS yet one had statistically significant findings whereas, when using the STSS there was no significance found. This seems contradictory since the sample is the same, so if they really are measuring the same construct, correlations and other outcomes should have been similar when comparing STS using the ProQOL or the STSS.

Borntrager et al. (2012), found STS (STSS) was weakly correlated with seeking other employment (A similar result was found using the ProQOL). Borntrager et al., also found STS (STSS) was weakly negatively correlated with employers encouraging personnel to talk about stress with peers.

Steen (2019) found that STS (ProQOL, n=260) was significantly moderately correlated with burnout, weakly correlated with professional distress, and negatively weakly correlated with compassion satisfaction. The limitation with this study, is the lack of description, conceptualization, and discussion of STS. This dissertation was focused on compassion fatigue.

Steketee (2020) did use Spearman correlations to analyze for STS (STSS, n=450) in school personnel and opioid epidemic zones; however, the correlation findings were excluded from this dissertation because no statistically significant (p-values) findings were provided.

Stevens et al. (2020), studied school shooting media exposure and STS (STSS, n=167) in school personnel. STS was found to be significantly positively correlated weakly with verbal aggression toward teachers and indirect aggression toward teachers. Additionally, STS was moderately correlated for the subscales of the created interaction with school shooting media. There was no moderation effect with lock down drills and STS. A limitation is both scales (aggression toward teachers and interaction with school shooting media) were self-created by Stevens. Bootstrapping was also used which, if the sample is not representative of the population of school personnel the results could be misleading.

Vanderwill (2021), accomplished the one study that did use a longitudinal design to measure STS (ProQOL, n=27) among four time points in the year September, December, February, and June; however, average STS for each of those timepoints ranged from 19-22 (December had the highest mean= 22 SD=7.84) which is indicative of low STS. There was a negative moderate correlation between STS and self-care in September (n=25) and June (n=23), and no statistically significant relationship between self-care and STS in December and February. A limitation is the small sample size.

Relationships

Borntrager et al. (2012), used a multiple regression model (n=233) which found seeking other employment and employers encouraging talking with peers about stress accounted for 13.3% of the variance of STS (using the STSS). A similar model using the ProQOL STS as a dependent variable showed that the same two independent variables accounted for 9% of the variance. A limitation with this sample, is the study was conducted after participants took part in an STS and self-care training which could have potentially skewed responses. No baseline was established prior to the training, the survey conducted was after the training had occurred. The other limitation is that only the independent variables that were found to be statistically significant with STS in the correlation were put in the regression model. The initial hypothesis was that “personal trauma history, intent to seek other employment, low peer social support, and organizations that discourage social support-seeking behaviors would predict higher levels of STS among school personnel” (Borntrager et al., 2012). It is unfortunate the regression model only included half of the initially intended variables. Even though there was a lack of statistical significance for history of trauma and low peer support, that is a

relevant finding particularly since there are other studies that found a history of trauma as a potential indicator of STS. One thing to note is that multiple studies did use various ways of measuring trauma. Borntrager et al. (2012) used a 3-item questionnaire.

In contrast to Borntrager et al., Christian-Brandt et al. (2020) found that STS was not associated with teachers' report of their intentions to leave the field in their model (n=163). A limitation in this study is that STS was not the focus. STS was an independent variable rather than a dependent variable. The focus was perceptions of trauma informed care. The school district surveyed had high numbers of elementary students who were English language learners and from a low-income community (identified by eligibility for free breakfast and lunch).

Grybush (2021) found that STS (ProQOL) was not statistically significant in the hierarchical model for trauma informed care. Additionally, STS (n=147) was found to be negatively moderately correlated with compassion satisfaction and moderately strongly correlated with burnout. STS was not found to be significantly related to trauma informed care, Adverse Childhood Experiences, or professional development. In this study ACEs were used as proxy for history of trauma. This study used purposive and convenience sampling from a county within a Southeastern state. This study also occurred during the beginning of COVID-19, so some of the responses were recorded prior to lockdown.

Rankin (2022) found (ProQOL, n=158) statistical differences in STS between females (n=120) and males (n=38), where females had higher STS levels (in the average category) than males (low category). There was no statistical difference between those who were novice teachers (< 6 years) and veteran teachers (six or more years of experience). There was statistical significance between those who had a history of trauma

and those who did not in the t-test analysis. A regression model was completed with STS as the dependent variable and gender (male/female), teaching experience (novice/veteran), and history of trauma (yes/no). These three independent variables were found to account for 23.8% of the variance in the statistically significant model. Years of experience was not statistically significant in the model however gender and history of trauma were. A limitation is that it is unclear which assumptions were checked. The author does provide an inspection of normality; however, there is no description of multicollinearity, linearity, and homoscedasticity. If all assumptions were not checked prior to running the regression, then the findings could be misleading.

Table 5

Secondary Traumatic Stress Protective Factors Assessed

Variables	Statistically Significant	Not statistically significant
Self-care/ mindfulness	Anama-Green (2020) Vanderwill, 2021(Sept. & June)	Vanderwill,2021 (Dec. &Feb.)
Self-Efficacy	Rumsey, 2017	
Empathy		Rumsey, 2017
Cognitive Reappraisal	Simon, 2020	
Compassion Satisfaction	Grybush, 2021; Hydon, 2016; Steen, 2019	Hydon, 2016
Professional Development		Grybush, 2021
Leadership Practices	Borntraeger et al., 2012; Wilson, 2020	
School Safety	Wilson, 2020	
Trauma Informed Care	Christian-Brandt, 2020;	Grybush, 2021

Rumsey (2017) found STS (ProQOL) in school counselors (n=174) using convenience sampling had a moderate, negative correlation with secondary trauma self-

efficacy, a positive moderate correlation with burnout, and a weak correlation to secondary exposure. A hierarchical regression was completed with three steps. The first step explored self-efficacy and was statistically significant accounting for 34% of the variance. The second step added empathy to the model and the model became statistically insignificant. The third step added secondary exposure which led to the model being significant and the accounting for 7% of the variance. The secondary exposure to childhood trauma measure analyzes the frequency (Likert scale 1-7) of 13 listed secondary exposures. All participants indicated secondary exposure; this measure was simply looking at the frequency of exposure. Assumptions were checked and reported.

Simon (2020) used multi-level structural equation modeling and found STS (ProQOL, n=88) was associated with increased student socio-emotional difficulties, teacher ACEs. Cognitive reappraisal was found to be negatively associated with STS. Additionally, STS was not associated with teacher reported relationship quality or teacher sensitivity. There are a few limitations with this study. The small sample size is potentially a limitation, and there was no discussion providing a power analysis.

Wilson (2020) explored organizational factors and STS (ProQOL, n=89). The domains of promoting physical and psychological safety (accounted for 34% of variance) and STS informed leadership practices (28% of variance) were statistically significant. These were separate regression models. There was a table that showed the multiple regression of all the organizational factors, but it did not provide a description of the overall model or the overall variance. A limitation is the sample size as there are seven items for physical and psychological safety and nine items used for leadership practices. There is concern about power.

Discussion

The purpose of this systematic review was to determine the pervasiveness of STS and to identify factors that increase or decrease the likelihood of STS in school personnel. This section discusses 1) the pervasiveness of STS in school personnel, 2) the factors associated with an increase in STS, 3) factors associated with a decrease in STS, 4) limitations, and 5) practical implications and future studies.

Secondary Traumatic Stress in School Personnel

This systematic review found that school personnel participants had average levels of STS (ProQOL), thirteen studies, n=1644) or mild symptoms of STS (STSS, six studies, n=1172) depending on which measure was used. Salloum et al., (2015) found child welfare workers experienced average levels of STS (ProQOL, n=104). Bride et al. (2007), found child welfare workers on average experience moderate symptoms of STS (STSS, n=187). When comparing STS levels using the ProQOL, then school personnel comparably experience STS at similar levels to child welfare personnel. However, when comparing STS levels using the STSS, school personnel on average experience a lower level of STS in comparison to child welfare workers. There are potentially a few reasons for the discrepancy. The first is sensitivity to assessing various levels of STS. The ProQOL only has three categories when assessing severity or lack thereof of STS (low, average, high) whereas the STSS includes five categories (little or no STS, mild STS, moderate STS, high STS, severe STS). Having more categories, the STSS can detect more nuance in STS levels. An additional reason for the differences in STS levels between child welfare and school personnel is the age and context of the articles cited. The child welfare field has actively assessed for STS and developed interventions and

strategies to prevent or reduce STS (Park & Pierce, 2020). Bride et al. (2007) is an older article and may no longer be representative of levels of STS in child welfare personnel at this time due to structural changes that have been implemented. This systematic review only looked at the STS means from various studies; therefore, the exact number of school personnel in the high STS category (ProQOL) and the moderate to severe category of STS (STSS) in school personnel is unknown.

Factors Associated with an Increase in Secondary Traumatic Stress

There are many factors that may potentially impact STS. These factors will be split into four domains: personal factors, role factors, school factors, and associated outcomes. It should be noted that these studies assessed many variables and their relationship with STS. The significant results and mixed findings will be highlighted, and some of the insignificant findings will also be included, particularly if the same variable was assessed in more than one study.

Personal Factors

Personal factors include factors the person has experienced outside of their working experience. This includes gender and history of trauma. Most of the participants were female, and two studies assessed STS gender differences. Females were found to have higher levels of STS than their male counterparts (Rankin 2022; Shoieb, 2020). Having a trauma history had more inconclusive results. Of the four studies that assessed trauma history, two studies found that a history of trauma was not statistically significant (Borntrager et al., 2012; Grybush, 2021) The other two studies did find the history of trauma was statistically significantly related to STS (Rankin, 2022; Simon, 2020). There are a few potential reasons for this ambiguity around history of trauma. One is different

measures were used to assess trauma. Two studies used ACEs (Grybush 2021; Simon, 2020), one used a three items questionnaire (Borntrager et al., 2012), and another asked a dichotomous question about history of trauma (Rankin, 2022). Another reason there may be differences is because two of the studies only look at childhood adversity rather than a lifetime history of trauma. Overall being female was associated with higher STS and half the studies support that there is an association between history of trauma and STS and the other half contradict this finding.

Work Factors

Work factors refer to factors that are attributed to the specific roles of the participants and what they are exposed to due to their position in the school. Work factors found in this systematic review include years of experience, teacher type, and compounding exposures. Three studies explored years of experience and STS. All these studies found that experience was not significantly related to STS levels (Gomez, 2021; Shoieb, 2020; Rankin, 2022). Each study split experience into the novice or non-tenured teachers (roughly less than five years of experience) and veteran or tenured teachers (greater than roughly five years). A potential reason that years of experience was not statistically significant was due to this dichotomous grouping. Years of experience could have been captured as a continuous variable which would have provided more variation in scores. Additionally, there was the assumption that five years was cutoff.

The teacher type is another role factor. Gomez (2021) found that general education teachers had lower STS than other teachers. However, Steen (2020) found no statistical difference between general education teachers and special education teachers.

These were the only two studies out of eighteen that explicitly assessed if there were statistical differences between educator roles.

Compounding factors include factors such as frequencies of secondary exposure and exposure to work related stressors. Rumsey (2017) found that higher frequencies of secondary exposure accounted for 7% of the variance in STS. Simon (2020) found that working with students with socio-emotional difficulties had higher levels of STS. In addition to working with socio-emotional difficulties, Stevens et al. (2020), found a significant weak correlation between verbal aggression toward teachers and STS as well as indirect aggression toward teachers and STS. Stevens et al. (2020) also found that exposure to school shooting media is moderately correlated to STS.

School Factors

School factors are tied to the school environment and includes underserved schools and level of school. Denham (2019) found that personnel in blighted schools had higher levels of STS when compared to the non-blighted schools. Gomez (2021) did not find a statistical significance between title-I and non-title-I schools. There are mixed results on the impact school environment has on STS and this may be due to differences in how these studies operationalized underserved schools. For instance, Denham used a standardized measure to assess for the environmental disrepair of the school; whereas Gomez operationalized underserved schools based on the percentage of free and reduced lunch rate. The school environment was not the only factor, Shoieb (2020) found that elementary personnel had higher levels of STS than middle school personnel.

Associated Outcomes

Associated outcomes include outcomes to stress such as seeking other employment, professional distress, and burnout. Two studies assessed seeking other employment. Borntrager et al., (2012) found that there was a weak correlation between seeking other employment and STS as well as found it significant in the overall regression model. Christian-Brandt et al., did not find statistical significance between seeking other employment and STS. Professional distress was another outcome that Steen (2019) found to be weakly correlated with STS. Finally, burnout was found to be moderately correlated with STS (Anama-Green, 2020; Hydon, 2016; Steen, 2019; Grybush, 2021). Interestingly Hydon (2016) only found burnout to be associated with STS when using the ProQOL STS subcategory; however, burnout was not statistically significant when using the STSS.

Factors Associated with a Decrease in Secondary Traumatic Stress

While there were not as many factors associated with a decrease of STS in school personnel, there were some interesting findings when it comes to personal factors and school factors. The significant results and mixed findings will be highlighted, and some of the insignificant findings will also be included, particularly if the same variable was assessed in more than one study.

Personal factors

The personal factors include aspects like intrapersonal self-care, mindfulness, self-efficacy, empathy, cognitive reappraisal, and compassion satisfaction. Vanderwill (2021) had mixed results with self-care. There were two timepoints (September and June) where self-care was statistically significant and negative moderately correlated with STS;

however, STS was not significantly correlated with self-care during December or February. One thought as to why there are differences could be due to the small sample size, or perhaps more self-care activities are more accessible during the summer or people are more stressed during the winter. Anama-Green found a moderate correlation between intrapersonal mindfulness and STS. This may have a relationship with one of the subcategories of STS like intrusion. Self-efficacy was also found to be moderately correlated to STS (Rumsey, 2017) and was found to account for 34% of the variance for STS. Whereas years of experience was not found significant, self-efficacy was. One reason for this is typically years of experience may be used to comfort with position or self-efficacy; however, years of experience may not be indicative of self-efficacy in school personnel. Empathy was not significantly associated with STS (Rumsey, 2017) and cognitive reappraisal was negatively associated with STS (Simon, 2020). The cognitive reappraisal may have a link with some of the subcategories of STS particularly intrusion.

Compassion satisfaction was the most common protective factors assessed in the STS school personnel literature with mixed results. Grybush (2021) found compassion satisfaction had a negative moderate correlation with STS. Steen (2019) and Hydon (2016) found a weak negative correlation between compassion satisfaction. However, Hydon (2016) did not find a significant correlation when using the STSS measure for STS. Compassion satisfaction may be found to have an association with STS due to the ProQOL including a compassion satisfaction domain. The one study where compassion satisfaction was not found to be statistically significant was when the STSS was used. If one uses Stamm's conceptualization of STS, then compassion satisfaction and STS

should be related. There are many potential personal protective factors, but further information needs to be collected to assess whether these findings are truly representative of school personnel in general.

School Factors

The other domain for protective factors includes the school factors. School factors assessed in STS school personnel literature include professional development, employers encouraging personnel to discuss stress with peers/ STS leadership practices, school safety, and trauma informed care. One study looked at professional development found that it was not significantly associated with STS (Grybush, 2021). Another school level protective factor assessed in the literature had to do with the leadership. Borntrager et al. (2012) found a weak negative correlation between employers encouraging personnel to talk about stress with peers, and the same article also found that this was statistically significant in the regression model. Similarly, Wilson (2020) found that STS informed leadership practices accounted for 28% of the variance for STS. This is an interesting finding that is supported by STS literature outside of school personnel, particularly in the child welfare field. Additionally, Wilson found that physical and psychological safety accounted for 34% of the variance of STS. A sense of safety accounted for STS, which makes sense since STS is a reaction to a perceived threat from a secondary source. An unsafe space in addition to a secondary exposure of trauma could compound one another. It should be noted that Stevens et al. (2020) did not find lockdown drills to have any interaction with STS. One potential reason is due to the limited sample size of this study. Attitudes toward trauma informed care were also assessed in relation to STS. Christian-Brandt (2020) found that participants with higher levels of STS perceived trauma

informed care to be more effective than their counterparts with lower levels of STS.

Whereas Grybush (2021) did not find a significant association between trauma informed care and STS. So overall it appears that perceived safety is a protective factor; however, perceptions of trauma informed care have mixed results. Perhaps this is due to the broad definition of trauma informed care and many aspects that can be changes or modified in school practices to be more trauma informed.

Limitations

The systematic review had several limitations and additional biases that need to be considered. Considerations include a lack of generalizability as well as validity concerns. A limitation is an overall lack of generalizability. None of these included studies used random sampling. There is a high probability of selection bias in these studies, and they are unlikely to be representative of school personnel in general.

Additionally, there is an overall lack of diversity in the studies included in the systematic review. For instance, most of the participants were white, female teachers. There is a lack of representation in these studies for non-white races, male, trans, or non-binary people, and other roles of school personnel. Of the eighteen studies only eight had races other than white that made up over 10% of the sample. Thus, there is an underrepresentation in non-white personnel. Only one study had a sample of Native Americans over 10% and another study with Asian Americans over 10%, four studies that had Black participants over 10%, and three studies with Hispanic or Latinx participants that made up over 10% of the samples.

This systematic review also highlights the need for a consensus in the field of what STS is and how it is conceptualized. The studies in this systematic review that

provided a conceptual definition of STS also viewed STS as symptoms that mimic PTSD symptoms after a secondary exposure. However, rather than using the construct that specifically assessed for PTSD symptoms after a secondary exposure (STSS), many studies used the ProQOL's STS subscale where STS is conceptualized as a subcategory of compassion fatigue (Stamm, 2010). This leads to validity concerns. Sprang et al., (2019) noted there are inconsistencies in how STS is defined and measured. Hemsworth et al. (2018), found that the STS subscale in the ProQOL had low/marginal convergent validity and concerns with the scale. This systematic review was not conducted to further assess the differences between the STSS and ProQOL subscore. However, when assessing STS with other variables, Hydon found differences in the relationships between STS and other variables dependent upon which STS measure that was used (ProQOL or STSS). Contrarily, Borntrager et al. (2012) found similar results between STS (ProQOL or STS) and other variables. Hydon and Borntrager et al., were the only two studies that used both measures.

Future Studies and Practical Implications

Based on the studies thus far, there are still many gaps that need to be addressed. Future studies need to explore: 1) STS measures and their convergent validity (STSS vs ProQOL), 2) interventions to prevent or respond to STS in school personnel, 3) studies with a representative sample of personnel including random sampling, 4) additional studies on other personnel and not just focused on teachers. Many practical implications can be drawn from the findings of this systematic review, with the caveat that further information is needed.

It is important to be aware of STS and risk factors to identify individuals or schools who are at the greatest risk for problematic levels of STS. Some schools may be at a greater risk due for personnel to have higher levels of STS due to working in a blighted school (Denham, 2019), work with more students with socio-emotional difficulties (Simon, 2020), or have higher exposures to secondary trauma (Rumsey, 2017). There are risk factors that can be addressed using organizational interventions. For instance, Stevens et al. (2020) found that exposure to school shooting media was associated with higher levels of STS, so when school shootings happen, it is important for schools to provide additional supports and ensure personnel know their options when it comes to personal mental health encourages the concept that perceive physical and psychological safety which is associated with STS (Wilson, 2020).

Based on the findings from the systematic review, there are potential places for prevention and intervention of STS in school personnel. There are two key findings that lend themselves to interventions: 1. mitigating compounding work factors/hazards and 2. having adequate supervisors or leaders.

There were four studies that found that more work hazards/ exposures shared a relationship with higher levels of STS. There is a need to ensure that school personnel are in as safe environment as possible with policies and procedures put in place to mitigate work hazards/ exposures as a form of prevention for STS altogether or to prevent STS levels from increasing. Policy level changes could occur to limit exposure including smaller class sizes, or more adults in classes to increase student to personnel ratios or bus drivers having additional adults present during transportation to reduce potential exposure

of a single person. However, having the resources available for additional staff or limiting secondary exposures is a feasibility issue.

The other factor that could potentially be used to address STS is ensuring personnel have adequate support from supervisors and leaders. Child welfare literature recommends addressing agency practices to limit STS. Specifically valuing and setting boundaries between one's work role and one's personal life (NCTSN, n.d.). It is also important for leadership to model this and not give conflicting directives such as talking about the importance of work-life balance and then expecting personnel to attend meetings and respond to emails in the evenings and on the weekends. NCTSN recommends supportive services after critical incidences. A critical incident in this case could be a primary exposure within the school or a secondhand exposure such as a student disclosing physical abuse or food insecurity. When possible, a debriefing is encouraged within 72 hours after the critical incident and the debriefing is conducted by a neutral party (Chadwick Trauma-Informed Systems Dissemination and Implementation Project, 2016). Many schools may not have access to someone outside of the school social worker or mental health provider who are trained to handle trauma related debriefings; however, it would be prudent for there to be a role to provide this specific service since the school social worker or mental health provider are just as much at risk for STS.

In addition to having an integrated policy for responding to a critical incident, the national child traumatic stress network recommends that child welfare organizations provide those in supervisory roles with training in reflective supervision techniques. These techniques would include practice skills such as reframing and mindfulness and

could be used by the supervisor and the supervisee. While this has not directly been replicated in school personnel, these recommendations are supported based on findings from the systematic review. Cognitive reappraisal (reframing) skills were associated with lower levels of STS (Simon, 2020) and while mindfulness had mixed results, two studies did find statistical significance between using mindfulness techniques and STS (Anama-Green, 2020; Vanderwill, 2021).

There is still much to be learned about STS in school personnel and there has been an increase in interest of STS in school personnel. Of the studies in this systematic review, the majority were published in the past five years. The likelihood of additional future studies appears promising and can provide additional information to support or refute findings. The important thing is that there be more knowledge when it comes to STS to support future interventions and policy changes to better support school personnel at risk or experiencing STS. The next chapter explores findings from a cross-sectional survey study assessing STS in school personnel from a Midwestern County.

Chapter Four:

The Pervasiveness and Contributing Factors of School Personnel Experiencing

Secondary Traumatic Stress

School personnel work together to provide students with educational material, social skills, emotional skills, and safety. School personnel are tasked with providing daily educational support to their students; however, lack of supports, constant stressors, and exposure to secondhand accounts of trauma of personnel, put them at risk for secondary traumatic stress (STS). At this time there is limited information on how prevalent STS is in school personnel and what factors put personnel at risk for STS.

Secondary traumatic stress is defined as the second-hand exposure of a trauma(s) that happens to others, and results in post-traumatic stress disorder (PTSD) like symptoms (Figley, 1995). It occurs commonly in professions that work with people who experience trauma such as nurses, physicians, social workers, and sometimes school personnel. The symptoms of STS include intrusive thoughts, avoidance behaviors, negative cognitions, and hyperarousal. Secondary traumatic stress differs from PTSD in that the symptoms occur because of secondhand exposure such as school personnel hearing from a student about their experience of trauma, rather than being directly exposed to the trauma themselves. Additionally, STS is not a clinical disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) whereas PTSD is noted as such (Bride et al., 2004).

Currently, there is a lack of consensus on STS conceptually, there are some researchers who view STS as a subcategory of compassion fatigue and others who view it as its own construct focusing more on PTSD symptoms after a secondary exposure. Each

of these conceptualizations have their own operationalization of STS. For STS as a subcategory there is the ProQOL and for STS as its own concept with PTSD symptom is the STSS. The difficulty with having two common instruments rather than one leads to more difficulty in translating and comparing the findings. This potentially leads to inconsistent results and an overall issue with the validity of STS. This chapter will be focusing on STS as operationalized by the STSS.

Exposure

School personnel are at an increased risk of being exposed to second-hand accounts of trauma. More than two thirds of children in the United States reported at least one traumatic event by the age of 16 (Substance Abuse and Mental Health Services Administration [SAMHSA], 2019). more than 10 million children experience trauma in the United States (National Child Traumatic Stress Network, n.d.). The location of the study was a Midwestern urban county with a population of just over 100,000. The county has 14 Title-I schools (13 elementary and one middle school) out of 29 schools which means 14 of the schools have poverty percentages higher than the national average (Vigo, 2021). According to the Indiana Department of Education [DOE] (2021) there are 1,114 educators with 97.3% are white. This county has just under 14,000 students where 81.1% are white, 56.6% are reported as economically disadvantaged and 20.4% of the students have disabilities. For the 2019-2020 school year there were 3,276 safety and disciplinary incidents within the county (DOE, 2021). Personnel in this Midwestern urban county have an even greater likelihood of being exposed second-hand accounts of trauma than the national average. In 2017, a study found that this urban county had the highest rate of neglect investigations within the state and third highest rate of child maltreatment reports

nationally (Administration for Children and Families, 2019). Nearly one in four children were investigated due to concerns of neglect (Bruce, 2019). Trauma in students can include forms of child abuse and neglect, but there are many other types of exposure to individual trauma for children.

Often trauma is only thought of as something that occurs to an individual personally; however, community or societally mediated traumas can be just as toxic. These include experiencing poverty, racism, community disruption, or community violence, etc. (Ellis & Dietz, 2017). The culmination of hearing about and/or seeing the effects of trauma in students' lives can take an emotional toll on school personnel (teachers, administrators, office staff, resource officers, custodians, lunch aids, bus drivers, nurses, social workers, etc.). School personnel are exposed to the children on daily basis and are the most common reporters of abuse and neglect making 19.4% of the allegations (Child Welfare Information Gateway, 2019) therefore school personnel may be particularly susceptible to secondary exposures of trauma.

Secondary Traumatic Stress in other Fields

STS has been studied extensively in other professions such as child welfare, social work, mental health, nursing, among many other professions. It could be argued that the different amount of exposure to secondary traumatic stress could be why STS levels range depending on discipline. Strolin-Goltzman et al. (2020) found child welfare workers on average indicated moderate STS levels using the Secondary Traumatic Stress Scale (STSS) in a sample of 237 participants. The same study found mental health providers on average had mild STS symptoms in a sample of 281 participants. However, there is less known about STS in school personnel, yet school personnel are also at a high

risk of being exposed to STS from the students even though their main job responsibilities do not include addressing student trauma. The purpose of the study is to determine: 1) How pervasive is STS in school personnel in this Midwestern County? 2) What factors are the risk and/or protective factors that put school personnel at risk for secondary traumatic stress symptoms?

Methods

The concept of STS has come a long way conceptually since the 1980s/1990s, however, due to inconsistent definitions of STS, inconsistent measures of STS, and the lack of quantitative literature of STS in school personnel, further research needs to be conducted to clarify what STS looks like in school personnel. The focus of this study is to increase the knowledge of STS in school personnel. The first research question was “How pervasive is STS in school personnel in this Midwestern County?” It was hypothesized that school personnel from this county would have higher levels of STS than average which would be indicative of moderate or higher levels of STS in the Midwestern County due to the higher than average exposure to students who have experienced child maltreatment. The second research question explored “What factors impact STS symptoms?” The domains explored included SDH, trauma, work factors, and supports. For the SDH domain it was expected that females, younger ages, lower income, lower education, and higher extended ACEs would be associated with higher levels of STS based on findings from other studies (Grybush, 2021; Rankin, 2022; Shoieb, 2020). For the trauma domain it was hypothesized that those with exposure to trauma and then trauma related symptoms were more likely to have higher STS based on statistically significant findings for a history of trauma and STS in other studies (Rankin, 2022;

Simon, 2022). The work factors included teachers, elementary school workers, fewer years in position, fewer years with current employer, and higher work hazards would be associated with higher STS. It was hypothesized that teachers, those working in elementary schools, with less experience and higher hazards would have higher levels of STS based on findings from other studies (Gomez, 2021; Rumsey, 2017; Simon, 2020; Stevens et al., 2020; Shoieb, 2020). It was also hypothesized that less supervisor, peer, and personal support would be associated with higher levels of STS.

Research Design

Studies have explored risk and protective factors in school personnel; especially using standardized quantitative measures. This survey is a cross-sectional design identifying the pervasiveness of STS as well as factors which contribute to STS. An online survey via Qualtrics was distributed to schools within the Midwestern County during December 2021 and January 2022. The survey was anonymous and confidential. The IRB approval was obtained from the University Human Subjects Review Board.

Sampling

School personnel are defined as workers over the age of 18 who work for or are on contract to work through the school or school corporation. School personnel include but are not limited to teachers, counselors, instructional assistants, administrators, food service workers, transportation service workers, maintenance workers, health, and mental health service workers. Convenience sampling was used as it was the most feasible sampling method in terms of access to participants and getting enough participants to test hypotheses. The school corporation in the Midwestern urban county was contacted via email with an introduction letter and study information sheet. The study received

approval from the school corporation and was distributed to the principals of participating schools. The principals of schools distributed the online survey to school personnel via email.

An *a priori* power analysis was conducted using G*Power 3.1.9.7 (Faul, et al., 2007) for a linear multiple regression with 14 total variables (2 control, 3 SDOH, 1 Trauma, 5 Work related factors, and 3 supports) which determined for a moderate effect size there needed to be 135 participants ($f^2=.15$, $\alpha=.05$, power=.80). There were initially 226 respondents; however, for the data analysis, only surveys that were 90% or more completed were used (n=175). The completion rate for the survey was 77.4%.

Measures

The survey included four domains. The domains for the independent variables included social determinants of health (IV), trauma (IV), work related stressors (IV), and supports (IV). Secondary traumatic stress (DV) was the dependent variable.

Social Determinants of Health

To capture SDH, various items from the demographic section and the extended Adverse Childhood Experiences were used. The demographics section (14-items total) used the adapted “background information” and “general job information” subscales from the National Institute for Occupational Safety and Health (NIOSH). While both subscales were used, some modification did occur. This section allowed the researcher to assess for demographic differences such as gender, age, race, ethnicity, education, Age is a continuous variable having respondents identify their “age at the time of their last birthday.” Age was used as a factor with work related factors due to other disciplines finding that younger ages had higher STS levels.

Childhood Adversity

The extended ACE was used as another SDH measured. To measure childhood adversity an adapted Philadelphia ACE survey (16-items) was used. This scale assessed for exposure to adversities within the respondents' first eighteen years of life. The 16-items include the original ACE questions (10-items) along with more community level questions. These questions are dichotomous (yes=1/no=0) questions. The removed questions are either not relevant to the proposal's research questions, and those that were relevant are more concisely addressed in other sections. Example extended ACE questions include "were you ever bullied by a peer or classmate?" and "were you ever in foster care?" Extended ACE question one "did you feel safe in your neighborhood?" and question two "Did you feel people in your neighborhood looked out for each other, stood up for each other, and could be trusted," were reverse coded so that a yes would indicate a negative exposure to adversity. The items were summed up for a total summary score. The higher the summary score, the more endorsed childhood adversities. A score of zero would indicate not endorsing any adversities listed in the extended ACE. According Karatekin & Hill (2019), the internal consistency was .84 for the extended ACE and the test-retest reliability was $\tau=.77$.

Trauma

Secondary traumatic stress identifies the symptoms that develop after secondary exposure to adversity, but it is also necessary to assess primary exposures to trauma and assess for complex trauma therefore assessment included PTSD as well as STS symptoms.

PTSD symptoms were used as an independent variable. PTSD symptoms were assessed by using the Primary Care-PTSD screen (PC-PTSD), a six-item, dichotomous screen. The first item's answer determines whether the following five items are relevant. The first question "Sometimes things happen to people that are unusually or especially frightening, horrible, or traumatic." If the answer is yes (1), the respondent is asked to answer the following five questions such as, "In the past month, have you... - had nightmares about the event(s) or thought about the event(s) when you did not want to?" and "been constantly on guard, watchful, or easily startled?". The first item is assessing exposure to a potentially traumatic event, the following items assessed for symptoms related to the adverse event. Each item's response was coded as No= 0 and Yes= 1. A summary score was created and ranged from zero to six. Zero indicated no experienced traumatic event, one indicated that the respondent experienced a traumatic event but denied any of the listed symptoms. A value of two for the summary score indicated the participant experienced a traumatic event and had one symptom related to the traumatic event, a value of three indicated two symptoms related to the event, four indicated there were three symptoms, five indicated there were four symptoms, and six indicated there was the initial exposure and all five symptoms presented. This screen did not assess for frequency or duration, only that the initial event occurred, and whether there was the presence of additional symptoms. It should also be noted that the PC-PTSD is a screen but not a diagnostic tool. For this study it was used to assess for rates of potential post-traumatic stress in school personnel.

Work Related Factors

Secondary traumatic stress occurs because of a secondary exposure to trauma, and in this study, it is important to identify secondary exposures from work related factors that may increase or decrease the likelihood of STS.

Specific demographics used in answering the two research questions included job role and school level. Job role is a nominal variable where multiple options such as “teacher”, “administrators”, “instructional assistants”, etc. There was also an “other” designation with a write-in option. Categories were combined initially so that each role category had at least ten responses. During the multiple regression analysis, the categories were collapsed again because most participants identified as teachers. The other categories were collapsed to “other staff.” “Other staff,” included office staff, administrators, resource officers, health & mental health staff, deans, substitute teachers, etc. School level was initially described as Kindergarten, Elementary, Middle, and High School. Most kindergarten programs have the same location as the elementary schools, so kindergarten and elementary were combined. Middle school and high school remained separate categories and the “other” category was not used in the hierarchical regression. Two additional questions that fell under the work-related factors include “Years worked with your present employer” and “Years worked in this job position.” The responses to both questions were reported in years.

Work Hazards

Work hazards can increase stress for workers and potentially put them at risk of exposure to a primary trauma. The Work Hazard scale is derived from the NIOSH Generic Job Stress Questionnaire. The work Hazard scale is a five-item Likert scale

(1=Never, 2=Sometimes, 3=About half the time, 4=most of the time, and 5=Always.

Some example questions include “Does your job primarily involve providing direct service to specific groups of people or client populations?” and “How often does your job expose you to verbal abuse and/or confrontations with clients or the general public?”. The individual items were summed for a work hazard summary score. The possible score ranges were from five to twenty-five. The higher score is indicative of a higher frequency of exposure to more potential work hazards. The average score was 12.4 (N=175, SD=3.4). The internal consistency was moderate ($\alpha=.64$).

Support

Supports are often viewed as protective factors when related to trauma and STS. The three types of support include supervisor support, peer support, and personal support. Supervisor support is a 4-item Likert subscale (1= “not at all” and 5= “a great deal”) of the NIOSH social support questionnaire ($\alpha=.927$). Example questions ask if your supervisor “can be relied on when things get tough at work?”, or if they “go out of their way to do things to make your work life easier for you?”. A summary score was created by summing the four items relating to supervisor support. The possible range was from 4 and 16 where 4 indicates little to no supervisor support and 16 indicates high levels of supervisor support.

Peer support is a 4-item Likert subscale (1= “not at all” and 5= “a great deal”) of the NIOSH social support questionnaire. Example questions ask if your peers “can be relied on when things get tough at work?”, or if they “go out of their way to do things to make your work life easier for you?”. A summary score was created by summing the four

items relating to peer support ($\alpha=.863$). The possible range was from 4 and 16 where 4 indicates little to no peer support and 16 indicates high levels of peer support.

Personal support is a 4-item Likert subscale (1= “not at all” and 5= “a great deal”) of the NIOSH social support questionnaire. Example questions ask if your personal supports “can be relied on when things get tough at work?”, or if they “go out of their way to do things to make your work life easier for you?”. A summary score was created by summing the four items relating to personal support ($\alpha=.855$). The possible range was from 4 and 16 where 4 indicates little to no personal support and 16 indicates high levels of personal support.

Secondary Traumatic Stress

Secondary traumatic stress is a continuous, dependent variable. The secondary traumatic stress scale (17-item, five-point Likert scale) was used to measure symptoms in the past seven days of secondary traumatic stress by persons impacted by their work with traumatized students. It ranged from 1-5 where 1=Never, 2=Rarely, 3=Occasionally, 4=Often, and 5=Very Often. Example items include “I felt emotionally numb”, “I had trouble sleeping”, and “I was easily annoyed”. It should be noted that the term “client” in the original STSS was replaced with student to be more relevant to school personnel. A summary score was created by adding the 17-items ($\alpha=.950$). There were some questions that 4 participants randomly skipped and did not answer. A sensitivity analysis was conducted to determine if the mean and standard deviation would be significantly impacted if a 75+% completion rate of the STSS was used rather than 100% completion rate. Both fell within the moderate levels of STS and there was no significant difference. The possible range was from 17 to 85 where the lower the score, the fewer the symptoms,

and the higher the score the greater the number of symptoms and their intensity. A score below 28 is categorized as “little or no STS,” 28-37 is “mild STS,” 38-43 is “moderate STS,” 44-48 is “high STS” and “49 and above is severe STS.” The STSS has subcategories as well including intrusion (5-items, $\alpha=.81$), Avoidance (7-items, $\alpha=.90$), and Arousal (5-items, $\alpha=.88$).

Pre-testing

The survey was pre-tested initially by a school mental health clinician and vice principal to assess the relevance of constructs included and address any wording or editing issues related to the survey. The survey was then sent to four additional personnel. These personnel were utilized to pilot the survey and assess 1) how long the survey took them, 2) if there was attrition, 3) what questions if any were skipped. The average time to complete the survey was 24.3 minutes (SD=13.8). There was on average a 97.25% completion rate from these four responses. Other than one person dropping out, all questions were answered. Based on the feedback and length of time it took to complete survey, the survey was further pared down by deleting sections that were potentially redundant or not directly related to the research questions. This reduced the number of items from 207 to 167 and led to an estimated completion time of 15 minutes rather than the 24.3 minutes. Additionally, three school personnel from a different county completed the reduced version. They assessed the user friendliness of survey, clarity of the survey questions, and the applicability of the questions. Based on their feedback some minor alterations were made to wording and additional information was provided to better explain certain concepts like STS to ensure they were reader friendly.

Data Collection

Prior to the administration of the survey, approval was obtained from the Indiana University Institutional Review Board (IRB) on human subject protection for the research. Additionally, the school board approval was provided prior to the survey being conducted. Data was collected online via an anonymous link through Qualtrics. The link was distributed by email sent during December 2021 and January 2022. Data was stored on a secure IU OneDrive.

Data Analysis

The data obtained were statistically analyzed using IBM SPSS package version 28. Overall surveys (N=226) that were less than 90% completed were removed due to many of the scales used for IV's and DV's being incomplete (all the cases removed did not have the STSS or any other scale completed). This brought the total participants to 175. The demographic characteristics of age, gender, and employment were analyzed using descriptive statistics. The independent variables and dependent variable that were continuous were assessed for normality, outliers, and missingness. Skewness did not exceed 2.0 and kurtosis did not exceed 7.0 (Curran, West, & Finch, 1996). Outliers were assessed if they fell within the possible range of the summary scores. All outliers (3) were appropriate answers, so they were kept reducing redaction bias (Grimes & Heathers, 2021). Missingness was addressed using pairwise deletion. The first research question exploring the pervasiveness of STS was analyzed using descriptive statistics. The second question assessing for factors contributing to STS was analyzed using a Pearson correlation and hierarchical. The Pearson correlation was conducted using the continuous

independent variables and the dependent variable to assess correlations to assess associations between independent variables and STS.

To assess STS and contributing factors, a nested model (Figure 3) was created using hierarchical regression ($N=175$). Pairwise deletion was used to address missingness since only three of the fourteen total variables (gender, income, and level) had any missing values. Assumptions were checked prior to running the model. Figure 2 displays the conceptualization of the hierarchical regression supported by stress theory and various factors previously mentioned in the literature review. The hierarchical regression used the nested model where the first model comprised the SDH including gender, age, education, income, and ACEs, the second model added trauma (PC-PTSD), the third model added work factors including, role, level, years in the position, work years for the employer, and work hazards. The fourth model added support: supervisor support, peer support, and personal support. For the hierarchical regression, it should be noted that the IV's did include 175 participants, however, gender, income, and level of school (elementary, middle, high school) all had cases that were not used in groupings that were used for the regression. For instance, gender had three cases where "other" was endorsed rather than female or male. Income had an option of "prefer not to say" where 11 individuals endorsed this option. The level of school included elementary, middle, and high school as well as an "other" option that 10 participants endorsed. The "other" for gender and school level were not included in the multiple regression due to the low number and the preferred not to say was also excluded and counted as missing. So pairwise deletion was used due to only three of these variables (gender, income, and school level) having data that could not be used due to issues with applicability.

Figure 3*Hierarchical Regression Model*

Contributing Factors/ Stressors			Support
<i>Model 1: SDOH</i>	<i>Model 2: Trauma</i>	<i>Model 3: Work Factors</i>	<i>Model 4: Social Support</i>
Gender	PTSD	Role	Supervisor Support
Age		Level	Peer Support
Education		Work years in position	Personal Support
Income		Work years for employer	
Extended ACE		Work Hazards	

Results

The results for the study focused on the pervasiveness and contributing factors to STS. This section will review the demographics as well as provide the results answering the research questions 1) How pervasive is STS in school personnel? and 2) What factors contribute to STS in school personnel?

Most of the participants ($N=175$) were married (66.9%), white, (95.4%), females (84%), with an average age of 43 ($SD=13.2$) (See Table 6). Over 80% of the participants had either a bachelor's or master's degree. Around 30% of the participants resided in households that made over \$100,000 and just under a third of the participants resided in households making less than \$50,000.

Table 6*Individual Demographics*

	N	Percentage or Mean (SD, Range)
Gender	175	
<i>Female</i>	147	84.0%
<i>Male</i>	25	14.3%

<i>Other</i>	3	1.7%
Race	175	
<i>White</i>	167	95.4%
Ethnicity		
<i>Not Hispanic or Latino</i>	175	100.0%
Age	175	43.8 (13.2, 22-70)
Marital Status	175	
<i>Married</i>	117	66.9%
<i>Widowed</i>	3	1.7%
<i>Divorced</i>	27	15.4%
<i>Never Married</i>	28	16.0%
Highest Level of Education Completed	175	
<i>High School Diploma</i>	8	4.6%
<i>Some College</i>	9	5.1%
<i>Associate Degree</i>	10	5.7%
<i>Bachelor's degree</i>	69	39.4%
<i>Master's degree</i>	74	42.3%
<i>Doctorate or Professional Degree</i>	5	2.9%
Household Income	164	
<i>0-49,999</i>	45	27.4%
<i>50,000-99,999</i>	69	42.1%
<i>100,000-149,000</i>	34	20.7%
<i>150,000+</i>	16	9.8%

Note Other races that were not white included: American Indian or Alaska Native, Black, mor than one race, and one individual preferred not to say.

Table 7 displays the work-related demographics. About two thirds of the participants were teachers. Additionally, 45% of the participants worked at the Kindergarten/ Elementary level. The average amount of time working for their current employer was just over ten years and ranged from just started to working for the same

employer for nearly 40 years. Many worked full-time with an average of 40 hours a week and participants indicated they worked on average six hours of weekly overtime.

Table 7

Work Related Demographics

	N	Percentage or mean (SD, Range)
Position	175	
<i>Administrators, Deans, Office Staff</i>	15	8.6%
<i>Teachers</i>	111	63.4%
<i>Instructional Assistants and Substitute Teachers</i>	13	7.4%
<i>Health and Mental Health Staff</i>	14	8.0%
<i>Other Staff</i>	22	12.6%
Level	175	
<i>Kindergarten & Elementary School</i>	79	45.1%
<i>Middle School</i>	38	21.7%
<i>High School</i>	53	30.3%
<i>Other</i>	5	2.9%
Work		
<i>Years worked with your present employer</i>	175	11.9 (10.3, 0-39)
<i>Years worked in this job position</i>	175	8.9 (8.9, 0-39)
Job	175	
<i>Full-time permanent</i>	148	84.6%
<i>full-time temporary</i>	7	4.0%
<i>Part-time permanent</i>	20	11.4%
Hours		
<i>Normal work hours in a week</i>	175	39.7 (10.9, 6-79)
<i>Overtime hours</i>	175	6.4 (6.4, 0-30)

Note: “Other staff” included resource officers, technical support, or “other” was selected but left blank.

Pervasiveness of STS in School Personnel

The average score on the STSS was 41.5 ($SD=15.5$). This demonstrates that the average participant indicated they experienced moderate levels of STS. The possible scores ranged from 17 to 85, and the participants' scores ranged from 17 to 77. About 21% of the participants indicated little or no STS, another 21% indicated mild levels of STS. The moderate level of STS accounted for 17% of the participants, while high levels were found in 9% of the participants and roughly one third of the participants (32.6%) indicated severe levels of STS. (Bride, 2007).

There were three STSS subscales which consisted of intrusion (5-items), avoidance (7-items), and arousal (5-items). The average intrusion subscale had a mean of 11.6 ($N=175$, $SD=4.4$). The most endorsed intrusion question was "I thought about my work with students when I didn't intend to." This item had a mean score of 3.21 ($SD=1.3$), meaning on average participants occasionally or often think about work when they don't intend to. The average total avoidance subscale was 17.2 ($SD=6.9$). The most endorsed avoidance item was "I felt discouraged about the future" which had a mean score of 3.16 ($SD=1.4$). The average participant indicated this occurred occasionally or often felt discouraged about the future. The average sum score for the arousal subscale was 12.7 ($SD=5.1$) with a range between five and 25. The most endorsed arousal item was "I had trouble sleeping," having a mean score of 2.87 (1.4). This means the average participant indicated a score between rarely and occasionally.

Factors that Impact Secondary Traumatic Stress

There are many factors that could impact STS in school personnel. This study focused also on assessing for which types of supports are associated with STS. While

some of the variables used in the regression can be found in Table 6 & 7, an additional table has been included to provide the summary scores of factors that were used for the regression. The scores that were added up include the extended ACE, trauma, work hazards, supervisor support, peer support, personal support, and STS (Table 8). The mean extended ACE was 3.5 meaning the average participant indicated three adversities during their childhood. The average trauma score was 1.6 so on average the participant had experienced a life-threatening adversity. A score of two would indicate a life-threatening adversity with a PTSD symptom. Work hazards had an average score of 12.4 meaning of the five work hazards, participants indicated they experienced each hazard between sometimes and about half of the time at work. The school personnel sample indicated a moderate amount of supervisor and peer support on average. Personnel on average indicated a lot of personal support.

Table 8

Summary Scores

	N	Mean	SD	Range
Extended ACE	175	3.5	3	0-15
Trauma	175	1.6	2.1	0-6
Work Hazards	175	12.4	3.4	5-22
Supervisor Support	175	13.6	4.9	4-20
Peer Support	175	13.9	3.7	4-20
Personal Support	175	15.7	3.8	4-20
STSS	175	41.5	15.5	17-77

STS is an outcome that has many factors influencing the level exhibited by school personnel. Stress theory in combination with previous studies helped identify the contributing factors for this study. Social determinants of health, primary trauma, and work factors for the purposes of this study were considered potential contributing factor

categories. In accordance with stress theory, toxic stress occurs because of a lack of resources and supports. This study focused on also assessing for which types of supports are associated with STS.

To assess STS and contributing factors, a nested model was created (Table 9) using hierarchical regression ($N=175$). The first model looked at SDH for variables of gender, age, education, income, and extended ACE ($F(5,153)=6.695, p<.001, R^2=.180$). Higher levels of STS were not statistically significant for gender ($\beta=-.118, p=.115$), but younger ages were associated with higher levels of STS ($\beta=-.319, p<.001$). Higher STS was significantly associated with higher levels of education ($\beta=.172, p=.030$) and higher levels of childhood adversity ($\beta=.219, p=.007$). Higher STS was not significantly associated with income ($\beta=.116, p=.178$).

The second model explored the association between primary trauma with additional symptoms and STS $F(6,152)=12.328, p<.001, R^2\text{change}=.148, p<.001$). Higher STS was significantly associated with trauma ($\beta=.427, p<.001$). In this second model gender and childhood trauma were not statistically significant. However, lower age ($\beta=-.247, p<.001$), higher education ($\beta=.177, p=.014$), higher income ($\beta=.165, p=.037$) were associated with higher levels of STS.

The third model assessed for a relationship between work related factors such as role, level of school, experience in position, time worked with employer, and work hazards $F(12,146)=12.942, p<.001, R^2\text{change}=.188, p<.001$). Teachers were associated with higher levels of STS than other staff ($\beta=.272, p<.001$) and more work hazards were associated with higher STS ($\beta=.357, p<.001$). However, level of school such as elementary ($\beta=.147, p=.061$) or high school ($\beta=.088, p=.248$) were not significantly

associated with STS. Experience in position ($\beta=-.065, p=.449$) and time worked with employer ($\beta=.049, p=.635$) were also not significantly associated with STS. Elements from the previous models were also significant in the fourth model such as lower age ($\beta=-.180, p=.034$) and higher trauma ($\beta=.331, p<.001$). Gender, education, income, and childhood trauma were not statistically significant in this model.

Table 9*Hierarchical Regression for Secondary Traumatic Stress (N=158)*

	Model 1		Model 2		Model 3		Model 4	
Variables	<i>B</i> (<i>SE B</i>)	β	<i>B</i> (<i>SE B</i>)	β	<i>B</i> (<i>SE B</i>)	β	<i>B</i> (<i>SE B</i>)	β
Gender	-5.153(3.255)	-0.118	-2.364(2.996)	-0.054	-3.21(2.755)	-0.073	-1.855(2.676)	-0.042
Age	-0.374(.094)	-	-0.290(.086)	-	-0.211(.099)	-.180*	-0.200(.099)	-.170*
		.319***		.247***				
Education	2.411(1.103)	.172*	2.492(1.003)	.177*	0.653(.926)	0.047	0.471(.888)	0.034
Income	0.607(.448)	0.116	0.861(.410)	.165*	0.299(.378)	0.057	0.370(.363)	0.071
Extended ACE	1.109(.403)	.219**	0.599(.377)	0.118	0.391(.335)	0.077	0.222(.322)	0.044
PTSD			3.202(.554)	.427***	2.486(.493)	.331***	2.347(.476)	.313***
Teacher					8.703(2.175)	.272***	8.605(2.078)	.269***
K-Elementary					4.549(2.413)	0.147	5.050(2.314)	0.163*
High School					2.917(2.515)	0.088	1.868(2.438)	0.056

Position	0.112(.148)	-0.065	-0.112(.141)	-0.065
Employer	0.073(.154)	0.049	0.078(.148)	0.052
Work Hazards	1.624(.283)	.357***	1.350(.278)	.296***
Supervisor			-0.521(.212)	-.164*
Peer			-0.204(.274)	-0.049
Personal			-0.489(.248)	-0.12
	$F(5, 153)=6.695, P<.001,$	$F(6, 152)=12.328, P<.001,$	$F(12,146)=12.942, P<.001,$	$F(15, 143)=12.554, P<.001,$
	$R^2=.180$	$R^2=.327$	$R^2=.515$	$R^2=.568$
		$\Delta R^2=.148, P<.001$	$\Delta R^2=.188, P<.001$	$\Delta R^2=.053, P<.001$

* $P<.05$; ** $P<.01$; *** $P<.001$

($N=158$, after pairwise deletion)

The fourth model assessed the relationship between types of support and STS $F(15,158)=12.554, p<.001, R^2\text{change}=.053, p<.001$). Less supervisor support was associated with higher levels of STS ($\beta=-.164, p=.015$). Peer support ($\beta=-.049, p=.457$) and personal support ($\beta=-.120, p=.051$) were not significantly related with STS. In this model lower age ($\beta=-.170, p=.045$), higher trauma ($\beta=.313, p<.001$), teachers ($\beta=.269, p<.001$), elementary school personnel ($\beta=.163, p=.031$), and higher work hazards ($\beta=.296, p<.001$) were associated with higher STS. Gender, education, income, childhood trauma, other school levels, experience in position, and time worked with employer were not statistically significant. In looking at the variance when accounting for all the factors such as SDH (18%), trauma (14.8%), work stressors (18.8%), and supports (5.3%), 56.8 of the variance was accounted for STS.

Discussion

This section focuses on the interpretation of the results to answer the research questions. The first research question was “What is the pervasiveness of STS in school personnel?” It was hypothesized that school personnel would have at least moderate levels of STS in this county due to the high exposure to secondary trauma because of high rates of child abuse and neglect reports in this county. The average score was moderate; however, there were higher levels of STS than initially expected. Roughly 42% of respondents indicated little or no STS or Mild STS. Roughly 17% accounted for then moderate levels of STS, nearly 9% high levels of STS and 32.6% fell into the severe STS category. In all, 102 out of the 175 participants indicated moderate or above. According to Bride (2007), a moderate score or above on the STSS indicates that the participant

likely meets criteria for PTSD. While the STSS is not a diagnostic tool, it does indicate that further mental health assessment could be appropriate due to moderate STS.

In comparison to other studies assessing the pervasiveness of STS in school personnel, this appears to be the highest indicated STS levels in school personnel. Hydon (2016), found that STS averaged 23.04, ($n=136$, $SD=7.94$) in school personnel which indicated that the average respondent did not have significant levels of STS. School personnel from the county did have a higher pervasiveness of STS when compared to other studies of school personnel.

STS is still relatively high when comparing STS in school personnel from this study to pervasiveness of STS in other professional fields. The mean for this study was 41.5 indicating the on average there was moderate STS. Cieslak et al. (2013), found mental health providers who worked with the military averaged 31.91 ($SD=10.65$, range 17-66), which indicates mild STS. Strolin-Goltzman et al. (2020) found that child welfare workers had a mean STS score of 40.14 ($n=237$, $SD=13.17$, $R=17-82$) and mental health providers had a mean STS score of 29.92 ($n=281$, $SD=11.65$, $R=17-63$). The sample of school personnel in this current study had a similar mean of STS to that of child welfare workers which is to an extent unexpected, but just like child welfare workers, school personnel potentially have a substantial amount of exposure to secondary trauma. A major difference between child welfare workers and school personnel is within the job description and ultimately the job function. Child welfare workers are tasked to work with clients who have or are facing trauma; whereas the task of school personnel is to support and educate students and not specifically to work with adversity or trauma. One reason why the STS pervasiveness may be so high in this sample is the fact that the

county does have disproportionately higher accounts of child neglect and abuse when compared to the national average. This increases the likelihood of secondary trauma exposure particularly when compared to the general population. This sample was purposive and is not representative of all personnel in the Midwestern County or elsewhere. It should be noted that this survey was conducted in 2021-2022 and there were salient outside factors such as the emergence and spread of Covid-19 and the omicron variant that could have impacted these scores. Additionally, the survey was conducted in December 2021 through January 2022, so the end and the beginning of semesters which could be an additional stressor not assessed.

When over half of the personnel sampled indicated moderate to severe levels of STS, it is not something that occurs only at the individual level needing individual intervention, it is something potentially more systemic needing interventions for the person and the workplace itself particularly when there is such a high likelihood of exposure. Potential factors that may contribute or prevent STS are explored in the second research question.

The second research question asked, “What factors impact STS symptoms?” The domains explored included SDH, trauma, work factors, and supports. For the SDH domain it was expected that females, younger ages, lower income, lower education, and higher extended ACEs would be associated with higher levels of STS. For the trauma domain it was hypothesized that those with exposure to trauma and then trauma related symptoms were more likely to have higher STS. The work factors included teachers, elementary school workers, fewer years in position, fewer years with current employer, and higher work hazards would be associated with higher STS. It was also hypothesized

that those with less supervisor, peer, and personal support would be associated with higher levels of STS.

Social Determinants of Health

The social determinants of health accounted for 18% of the overall variance in the first model. While gender, age, income, and extended ACE accounted for the 18% of variance, initially only lower age, higher education level, and the higher extended ACEs were significantly associated with higher STS found in Model One. The extended ACEs and age have a relationship with STS in this sample. When trauma was added in model two, the extended ACE was no longer significant; however, lower age and higher education remained significantly associated with higher STS scores in all the models. Interestingly, income was only statistically significant in the second model, and it was higher income that was indicative of higher STS. Future studies should assess SDH the relationship with STS. In this sample age showed a relationship with STS regardless of model; however, education, income, and ACEs also showed a relationship with STS depending on the model and other independent variables within the model. One potential factor that may have impacted income is it was categorical, and it was based on household income.

Trauma

Authors have referred to the presence of primary and secondary traumatic stress as “shared trauma” (Cohen et al. 2006), “dual trauma” (Berger et al. 2016), or it could also be considered a form of complex trauma. The PTSD score accounted for 14.8% of the variance of STS found in the second model. PTSD was statistically significant in model three and four. Since STS is a type of post-traumatic stress and may be considered

a form of PTSD if enough diagnostic criteria are met (considered by some authors (Bride et al. 2007), for other authors it appears to be a separate concept (Hydon, 2016)). When measuring STS, it is necessary to account for primary exposure and symptoms. Hensel et al. (2015), found that a personal history of trauma is associated with STS. Whether or not STS is considered a type of post-traumatic stress disorder, STS is considered a toxic stress and primary trauma is also a type of toxic stress. At this point there is not enough data supported whether STS is fundamentally the same or just shares similarities with PTSD, so future research should provide further clarification of STS through a clinical, diagnostic lens and determine whether it is a sub-variant of PTSD. One potential difference that needs to be further explored with PTSD and STS is the temporal component and exposure component. For PTSD to be diagnosed, the symptoms must be present for a month after the initial exposure. It is unclear if the temporal criteria are the same with STS as the STS screen does not assess for the timing of exposure and onset of STS symptoms. Also there have been limited longitudinal studies of STS literature search has determined no longitudinal studies on STS in school personnel. These studies would help to determine whether STS could be characterized as acute or chronic. There was a significant, moderate correlation between the PTSD screen and the Secondary Traumatic Stress Scale in this study as well, but if PTSD and STS were one in the same, one would think that they would be strongly correlated. However, a potential limitation is that those with PTSD symptoms could potentially be experiencing residual effects from primary trauma and attributing it to the work environment or vice versa which could skew results from the STSS.

Work Factors

So far, the variables provided were at an individual level. The work factors begin to identify how the work environment relates to STS. Work related factors in this study accounted for 18.8% of the variance of STS which is higher than the other factors such as SDH and trauma. This could be a useful and practical finding in that STS has often been identified as an individual phenomenon; however, the work factors seem to play an instrumental role in increasing and/or decreasing STS as an outcome.

One work related factor separating results for teachers in comparison to all other staff was done because most of the sample comprised teachers and all other personnel were collapsed into one category. The job category of teacher significantly associated with STS. One limitation, however, was the variability of the “other” category which comprised many different roles such as administrator, school counselor, resource officer. Unfortunately, due to the limited sample size of each of these categories, this study was unable to analyze more specific roles which could have potentially skewed the results. For instance, some of the roles may have more direct exposure to secondary trauma and have higher STS scores, but because there weren’t enough participants in that role who completed the survey, they were combined with other personnel who may be less at risk for secondary exposure or may have lower levels of STS. Future studies could focus on additional roles such as office staff, administrators, counselors, nurses, etc. particularly since in the school setting, most participants have been teachers; although there have been studies that look at school counselors, or school personnel in general. The type of school in which the respondents worked was another important factor. There is some mixed literature on whether working in elementary, middle, or high school puts

one at greater risk for STS. One study found that elementary school personnel were at a higher risk for STS; however, Shoieb (2020) did not find statistical significance between elementary and middle school levels of STS in personnel. This study supports the finding that there is a statistically significant relationship between elementary school and higher STS. There are a few potential reasons why elementary personnel are more likely to have higher levels of STS than middle or high schools.

According to the Annie E Casey Foundation (2021) ages five through ten makes up 32% of all substantiated cases of child abuse and neglect. The only age range higher is zero to four with 40%. Personnel working with younger children are more likely to be exposed to secondary traumatic stress than personnel in middle or high school.

Years of experience has been examined in other studies as a potential factor affecting the severity of STS. This study explored years in position and years worked for employer.

Neither years of held position nor years worked for employer were statistically significant. The lack of significance in years of experience in both position and for employer has been found in other studies (Simon, 2019). Interestingly, experience was not statistically significant, but a younger age was statistically significant. This may lend credence to idea that experience is not the main factor for STS, but younger age and development across the lifespan. This also could have occurred because younger personnel may have been in roles where they were more likely to have direct exposure to secondary trauma. For instance, instructional assistants and substitute teachers had the lowest average age at 37.6 (N=13, SD=12.7), health and mental health providers average age was 41.4 (N=14, SD=12.7), the average teacher's age was 43.1 (N=111, SD=12.8), while administrators average age was 52.3 (N=15, SD=9.612). It is likely that of those

four groupings, administrators had the least amount of consistent contact with students, and they also had the highest average age.

Work hazards were found to have a statistically significant relationship with STS and the strongest relationship to STS among all the other variables found in model three and four. Work hazards are another form of toxic stressors that can compound the other stressors a person is dealing with in their life. In addition, while STS does look at secondary exposures to trauma from work, it is possible that a work environment exposes people to primary trauma as well. Within the work hazard subscale one question asked how often the respondent is exposed to verbal abuse or confrontations with students or the public and over 90% of the participants endorsed at least sometimes. Another question asked how often respondents are exposed to threat of physical harm or injury and over 60% of the respondents endorsed this item. Just under 20% of the respondents endorsed being assaulted at work within the past year. Work hazards and the environment in which personnel work can impact STS and perhaps sense of safety in general. A limitation of the finding of work hazards is lack of a comprehensive list of potential work hazards. It is also not a standardized scale with summary scores.

Support

Supports accounted for 5.3% variance for STS. For this study supervisor, peer, and personal support were assessed. The regression on supervisor support was statistically significant which is contradictory to many other studies about STS in school personnel where supervisor support was not indicative of lower STS levels. However, child-welfare literature addressing STS has found supervisor support to be negatively correlated to STS (Park & Pierce, 2020). One potential reason for this finding could be

dependent upon the nature of the supervisor/personnel relationship. For instance, Strolin et al. (2006) identified in the literature that supportive supervision makes the demands of child-welfare workers tolerable. However, Strolin et al., also stated that insufficient supervision increased the likelihood of negative outcomes for workers such as increased turnover. If the personnel do not feel comfortable sharing issues with their supervisor and supervisors do not provide adequate support, then personnel are at greater risk for higher levels of STS. It is possible that due to the high incidences of higher abuse and neglect in this county, that supervision plays a greater role with the development of STS. Peer relationships were not found to be statistically significantly related to STS; however, the correlation between peer support and STS found that they were weakly and significantly correlated. One potential reason for this is that there may be some interactions between peer relationships and the stressors. In other studies peer relationships have been found to be statistically significant (Santa, 2016). Personal support was also not found to be statistically significant related to STS. However, like peer support, there was a weak statistically significant correlation between STS and personal support. Interactions are a potential reason for why it was not statistically significant.

Limitations

There are limitations for this study. There was a lack of diversity, so race was not controlled for in the regression model. Future studies should be conducted where personnel are more diverse to assess the impact of race and STS in school personnel. Another limitation is that the sample was purposive so there is the potential that personnel who had a vested interest in STS were more likely to complete the survey, thus

potentially skewing the results. Generalizability would also be a potential concern for this study as it took place in the Midwestern County which has much higher cases of child abuse and neglect than elsewhere in the country.

While there is limited information on data supported interventions and evidence-based practices. Berger et al., (2016) recommended interventions that focus on psychoeducation skills-training and supervision to address STS. Shoieb (2020) recommended access to counselling and training for school personnel to address STS. To date there has not been a published evidence-based curriculum directed toward school personnel with STS. Future studies need to address this gap. As evidenced by the results from this study, there is a need for responsive strategies to combat STS in school personnel for those experiencing moderate and above levels of STS and proactive strategies to mitigate STS for the personnel with no or mild STS. This study found that individual level stressors (SDH and trauma) do have a relationship with STS, there are also environmental factors (work factors and supervision) that share a relationship with STS. This would potentially be useful information when developing an intervention to address STS in school personnel. Interventions need to go beyond just addressing the person, there are aspects of intervention or changes in policies and protocols that also address the environment school personnel are in, particularly when it comes to the work hazards to which they are exposed and the access to which school personnel have supportive supervision.

Implications and Future Research

Practical implications include developing protocols to mitigate work hazards and providing structured supervision as part of the structure within the school and school

corporation, especially when there is a high incidence of trauma in students. Another practical implication is the need to have access to mental health care for all school personnel. The average participant had a moderate STS score. This is an indicator that mental health and access to mental health providers is needed to reduce the long-term impact of toxic stress.

Another potential implication is the need for mental health providers to be trained to assess reactions to secondary exposures. Currently many PTSD screens only look at primary traumas; however, it is possible that some people with secondary exposure may meet the criteria for PTSD. Education about STS is also important. Personnel may be unaware of how pervasive and insidious STS can be on the human condition.

This study focused on the pervasiveness and factors relating to STS. While there is a growing literature on STS in school personnel, there is still much to learn in understanding the STS phenomenon. There is a need for further support to prevent and intervene with STS and to determine which factors put personnel at risk. Findings from this study indicate that social determinants of health, personal trauma, and work factors significantly contribute to STS and more supervisor support indicates lower STS.

This chapter focused on the results from a quantitative study conducted. The following chapter will integrate findings from this chapter and chapter three, provide practical implications, and the need for additional research.

Chapter Five: Integration of Findings

Thus far there has been an introduction about secondary traumatic stress, stress theory has been explored, a systematic review was presented on secondary traumatic stress in school personnel and a cross-sectional study with findings has been addressed. This final section will provide a brief overview of the issue, review research questions and hypotheses, integrate overall findings from previous chapters, discuss limitations, provide implications, and discuss future research.

Overview

School personnel can be exposed to secondary traumas through their students. Until recently, there was limited empirical information on how secondary traumatic stress manifested in school personnel. School personnel are the most common reporters of abuse and neglect with 19.4% of the allegations coming from school personnel (Child Welfare Information Gateway, 2019). School personnel includes, teachers, administrators, staff, resource officers, custodians, lunch aids, bus drivers, nurses, social workers, etc. School personnel are exposed to children who have experienced adversity. VanBergeijk reported that urban school personnel suspect an average of 92 cases of child maltreatment throughout their careers (in press). While individual student trauma is prevalent, other systems and injustices may provide additional adversities such as poverty, racism, family, and community violence, among many others (Ellis & Dietz, 2017). Exposure to adversity resulting in trauma can be at the individual level, family level, or the community level. According to Langley et al., (2013) data range from 20-50% of children having experienced trauma in their family, school, or community.

Personnel exposed to secondary trauma may be unaware of how to respond or feel ill-equipped to handle such situations and may question their role in the healing process (Alisic, 2012). In addition to grappling with the disclosures from students, personnel may develop symptoms of their own, even though the trauma did not directly happen to the personnel. STS is a second-hand account of a trauma that occurred to an individual, and results in post-traumatic stress disorder (PTSD) like symptoms (Figley, 1995).

These symptoms can interfere with daily functioning. Bell et al., (2003) found that STS interferes with workplace productivity. Additionally, stress in general can lead to missing more days of work and lower retention rates (Bowers, 2004; Montgomery & Rupp, 2005). Trauma related stress has been linked to an increase in likelihood for health issues including but not limited to susceptibility for infection, respiratory infections, cardiovascular disease, diabetes, obesity, and metabolic syndrome (Padget & Glaser, 2003; Picard et al., 2014; Sinha & Jastreboff, 2013; Steptoe & Kivimaki, 2013). STS can have many impacts on school personnel from their daily productivity to their long-term health.

Until five years ago, there was limited interest in the effects STS has on school personnel based on the systematic review conducted in chapter three. However, other disciplines and professions like child welfare, nursing, and mental health professional have had over a decade of information gathered as to the risk factors, protective factors, interventions, and outcomes associated with STS. For instance, based on research in child welfare and mental health, risk factors associated with STS in the workforce include younger professionals, those exposed to multiple traumatized clients, high caseloads, low peer support, low administrative support, organizational stressors, and a personal history

of trauma. (Arvay & Uhlemann, 1996; Brady et al., 1999; Cornille & Meyers 1999; Regehr et al., 2004). The purpose of this dissertation was to integrate the quantitative research thus far regarding STS in school personnel and assess factors that contribute to or are associated with STS.

Research Questions and Hypotheses

Chapter three and four had different yet complementary research questions. Chapter three was a systematic review of the STS quantitative literature in school personnel. Chapter four was a cross-sectional study of STS in school personnel from a midwestern county. The research questions addressed in the systematic review and the cross-sectional study focused on the pervasiveness of STS in school personnel and what factors increased or decreased the likelihood of STS. include: 1) What was the pervasiveness of secondary traumatic stress (STS) in school personnel? 2) What factors increased or decreased the likelihood of STS in school personnel?

Findings

The third and fourth chapters provided insight into how problematic STS in school personnel is, what puts people at risk, and what is protective. This section will focus on integrating the findings from the systematic review and the cross-sectional study. This will be done by reintroducing research question(s) and hypotheses, assessing pervasiveness of STS, followed by comparing risk factors found in the systematic review and the study, and finishing with the protective factors found in the systematic review and the study.

Pervasiveness

It was imperative to establish to what extent STS manifests in school personnel. The first research question for the systematic review and the chapter four study addressed pervasiveness. The systematic review explored the pervasiveness of STS and the cross-sectional study explored how common STS was based on participant responses from a Midwestern County.

H1: In the systematic review it was hypothesized that most participants in the studies assessed would indicate average/ mild levels of STS.

The systematic review provided three different averages of STS based on the measure used. The ProQOL measure from thirteen studies ($N=1644$) found school personnel had average levels of STS. The ProQOL has two ways to calculate STS. Nine of the sixteen studies used the subcategory to determine STS ($N=1065$, $M=23.7$, $SD=6.1$, $R=22-28.4$) and the remaining seven used the cumulative score ($N=579$, $M=50.6$, $SD=7.4$, $R=49.4-52.37$); however, both scores fall in the “average” level of STS. The studies that used the STSS measure found school personnel to have mild symptoms (score between 28 and 37) of STS from six studies ($N=1172$, $M=36.44$, $SD=12.9$, $R=20.8-51$).

After identifying the pervasiveness of STS in school personnel from the systematic review, the cross-sectional study explored the pervasiveness of STS in school personnel from a Midwestern County (chapter four). It was known that there was a higher incidence of child abuse and neglect in this county in comparison to the state or national average.

H1: On average there would be a moderate STS in school personnel.

The cross-sectional study of school personnel ($N=175$) used the STSS. The average score on the STSS was 41.5 ($SD=15.5$). This demonstrates the average participant experienced moderate levels (scores of 38-43) of STS. The STS scores possible ranged from 17 to 85, and the participants' actual scores ranged from 17 to 77. About 21% of the participants indicated little or no STS, another 21% indicated mild levels of STS. The moderate level of STS accounted for 17% of the participants, while high levels were found in 9% of the participants and roughly one third of the participants (32.6%) indicated severe levels of STS.

The mean of the cross-sectional study in chapter four indicates that the study personnel experienced higher levels of STS than school personnel who have participated in other studies. According to Bride (2007), a moderate score or above on the STSS indicates that the participant likely meets criteria for PTSD. While the STSS is not a diagnostic tool, it does indicate that further mental health assessment could be appropriate due to moderate or higher levels of STS. It should be noted that the scores from the STSS may not be representative of the county school personnel.

The systematic review hypothesized that on average participants would have average or mild levels of STS. This was done by calculating weighted means from the results in each study. The averages for each STS measure were congruent with the hypothesis and found that the mean level of STS fell into the average or mild level of symptoms. This finding could be an indication that on average, personnel do not experience high levels of STS; however, there are limitations to drawing such a conclusion that are further discussed.

In comparison, chapter four hypothesized that school personnel would have moderate levels of STS due to the higher exposure to children who have experienced adversity. In addition to the higher exposure to children who have experienced trauma, the chapter four study may have higher levels of STS due to focusing on school personnel in general rather than just teachers. Most studies in the systematic review only looked at teachers. There were some studies that explored STS levels in counselors or social workers, but only four analyzed STS levels in school personnel more generally. This potentially demonstrates that while it is important to explore STS in teachers, it is also important to assess STS in other personnel as well, because they are also susceptible to STS.

A limitation in comparing the results of the systematic review and the cross-sectional study is not knowing the overall distribution within the categories of the included studies in the systematic review. For instance, the mean provides an overall indicator of the average STS; however, there is no way of knowing how many of the 1172 participants who fell within the “little or no STS”, “mild STS”, “moderate STS”, “high STS”, or “severe STS”. Another limitation when interpreting these results is the use of two different measures with different categories of STS. Essentially the findings from chapter four can only be compared to the STSS results from the systematic review, meaning even though 18 studies (n=2583) from the systematic review provided information on the mean STS, the findings from the ProQOL cannot be directly compared to findings from the cross-sectional study in chapter four.

In addition to the categorization and different measures, another limitation is the lack of generalizability. None of the studies, including the study in chapter four used

random sampling. The main sampling methods for the systematic review were convenience, followed by snowball, and then purposive. The sampling method used for the chapter four study was convenience sampling. Diversity is also a limitation. Most participants in the systematic review and the chapter four study were white, females. It is unclear how STS translates when it comes to non-white races. To address this gap, future studies should focus on sampling or over-sampling more diverse areas.

Factors Associated with an Increase or Decrease in STS

The second research question for the systematic review and the study in chapter four explored risk and protective factors for STS. Risk factors will be addressed first. The systematic review hypothesized that a history of trauma, high exposure rates, and fewer years of experience, would be associated with higher levels of STS. The study described in chapter four hypothesized that females, younger age, less education, lower income, higher ACEs, higher PTSD, teachers, worked at the elementary level, fewer years in position, fewer years with employer, and more work hazards would have higher levels of STS. There were a multitude of potential risk factors, in the systematic review, these factors were categorized into four domains: personal factors, work factors, school factors, and associated outcomes, whereas the chapter four study explored risks based on three domains: social determinants of health, trauma, and work factors.

Gender

The systematic review hypothesized risk factors such as being female to be associated with higher levels of STS. The personal factors identified in the systematic review were gender and history of trauma. Two studies found that females had higher levels of STS (Rankin, 2022; Shoieb, 2020). Chapter four hypothesized that being female

would have higher levels of STS. However, the chapter four study did not find gender to be predictive at any point in the hierarchical regression model. This could be due the disproportionate number of females to males in the sample.

Social Determinants and Trauma History

The systematic review hypothesized that a history of trauma would be associated with higher levels of STS. History of trauma had mixed results with its association with STS in the systematic review. Two articles found that a history of trauma was not statistically significant (Borntrager et al., 2012; Grybush, 2021). Two other studies did find the history of trauma was statistically significantly related to STS (Rankin, 2022; Simon, 2020).

However, the trauma history variable measures were inconsistent in the systematic review. Two studies used ACEs (Grybush 2021; Simon, 2020), one used a three items questionnaire (Borntrager et al., 2012), and another asked a dichotomous question about history of trauma (Rankin, 2022). In the systematic review two of the studies did use ACEs as a proxy for trauma history, alternatively the chapter four study assessed for the extended ACEs which was categorized a measure for social determinants of health rather than trauma history. The Extended ACEs were used in the regression model as a variable to quantify overall social determinants of health the participant was exposed to as a child at the individual, family, and community level. The extended ACE initially had a significant relationship with STS in the social determinants of health domain (first model); however, it was no longer significant when trauma was added to the model.

The trauma history variable in chapter four was operationalized as the 6-item questionnaire PC-PTSD which was not used in any of the other studies from the systematic review. The study described in chapter four found trauma to have a statistically significant relationship with STS and accounted for nearly 15% of the variance. There are a few potential reasons for this ambiguity around history of trauma.

While a history of trauma was found to be related to higher levels of STS in two studies from the systematic review, and the chapter four study, future studies need to occur where a consistent measure is used to operationalize trauma history. Likewise, extended ACES may not be the operationalization of trauma history, but better fits as a variable assessing social determinants of health.

Other variables found to have a relationship with STS in the chapter four study from the social determinant of health domain include younger age, higher education, and higher income. Age was found to be statistically significant in all four models. Age was a continuous variable, other studies from the systematic review did include age as part of their descriptions but they were categorized and lacked any significance with STS. Additionally, education was statistically significant in the first model addressing social determinants of health and the second model which added trauma. Education was no longer significant once work hazards were added (third model) nor supports added (fourth model). This could have been due to those different educational levels result in having different job roles that exposes them to different types of work hazards. Higher income was associated with higher STS. Income was only statistically significant in model two where there were SDOH and trauma in the model and higher income was associated with higher STS levels. This contradicts findings in STS studies from other

disciplines and goes against the study's hypothesis. It was expected that those with lower income would have higher STS levels. One potential reason for this, is the income measure was based on household income rather than individual income.

Work Risk Factors

Work factors were another domain identified in the systematic review. Work factors included years of experience, teacher type, and compounding exposures. It was hypothesized that fewer years of experience, and more compounding exposures would be associated with higher levels of STS. This was akin to the work factors described in the study from chapter four where work factors included, teacher vs. other personnel, years in current position, years with current employer, work hazards. It was hypothesized that teachers, fewer years in position, fewer years with current employer, and higher work hazards would be associated with higher STS. Level of school was also included in the work factors in chapter four; however, level of school was included in school factors in the systematic review.

Years of Experience. For years of experience all the studies in the systematic review found that experience was not significantly related to STS levels (Gomez, 2021; Shoieb, 2020; Rankin, 2022). Each study split experience into the novice or non-tenured teachers (roughly less than five years of experience) and veteran or tenured teachers (greater than roughly five years). A potential reason that years of experience was not statistically significant was due to this dichotomous grouping. However, years of experience in current position and years of experience with current employer were explored in chapter four as continuous variables. There still was no statistical significance between experience and STS.

Teacher role. Another work factor includes teacher role. Gomez (2021) found that general education teachers had lower STS than other teachers. However, Steen (2020) found no statistical difference between general education teachers and special education teachers. These were the only two studies out of eighteen in the systematic review that explicitly assessed if there were statistical differences between educator roles. The study from chapter four found that teachers had higher levels of STS in comparison to other roles.

Exposure. The systematic review found additional work factors such as frequencies of secondary exposure and exposure to work related stressors. Rumsey (2017) found that higher frequencies of secondary exposure accounted for 7% of the variance in STS. Simon (2020) found that working with students with socio-emotional difficulties had higher levels of STS. In addition to working with socio-emotional difficulties, Stevens et al. (2020), found a correlation between verbal aggression toward teachers and STS as well as indirect aggression toward teachers and STS. Stevens et al. (2020) also found that exposure to school shooting media is moderately correlated to STS. The chapter four study found that higher work hazards are related to higher STS levels. In the study the overall work factors domain accounted for nearly 19% of the variance of STS.

A work factor in the chapter four study but a school factor in the systematic review is the level of school one is employed at. The chapter four study found that working at an elementary school is associated with higher levels of STS. Shoieb (2020) found that elementary personnel had higher levels of STS than middle school personnel.

Underserved School. The other school factor identified in the systematic review is whether the school is underserved or not. Denham (2019) found that personnel in blighted schools had higher levels of STS when compared to the non-blighted schools. Gomez (2021) did not find a statistical significance between title-I and non-title schools. There are mixed results on the impact school environment has on STS and this may be due to differences in how these studies operationalized underserved schools. For instance, Denham used a standardized measure to assess for the environmental disrepair of the school; whereas Gomez operationalized underserved schools based on the percentage of free and reduced lunch rate.

Additional Risk Factor Findings from the Systematic Review

Other associated outcomes found in the systematic review include seeking other employment, professional distress, and burnout. Two studies assessed seeking other employment. Borntrager et al., (2012) found that there was a weak correlation between seeking other employment and STS as well as found it significant in the overall regression model. Christian-Brandt et al., did not find statistical significance between seeking other employment and STS. Professional distress was another outcome that Steen (2019) found to be weakly correlated with STS. Finally, burnout was found to be moderately correlated with STS (Anama-Green, 2020; Hydon, 2016; Steen, 2019; Grybush, 2021). Interestingly Hydon (2016) only found burnout to be associated with STS when using the ProQOL STS subcategory; however, burnout was not statistically significant when using the STSS.

Overall, it seems that most risk factors vary between studies. This could be due to the individuality of each school system. However, it does appear that work hazards like

being yelled at (by student or parent) or being physically assaulted increases the likelihood of STS. Additionally increased exposure to students with trauma increases the likelihood as well. A history of trauma has mixed results as to its relationship with STS. It should be noted that in the hierarchical regression from chapter three, trauma (operationalized as a PTSD screen) accounted for nearly 15% of the variance of STS. A surprising finding based on the systematic review and the study from chapter four was years of experience was not related to STS. It was hypothesized that less experienced personnel were more likely to experience STS. However, younger ages were found to be related to STS.

Protective Factors

Factors that reduced STS risks were also assessed in the systematic review and the chapter four study. The fourth chapter explored support factors such as supervisor support, peer support, and personal support and the systematic review found many potential protective factors and were split into two domains: personal and school.

Personal Factors

The personal factors include aspects like intrapersonal self-care, mindfulness, self-efficacy, empathy, cognitive reappraisal, and compassion satisfaction. Vanderwill (2021) had mixed results with self-care. There were two timepoints (September and June) where self-care was statistically significant and negative moderately correlated with STS; however, STS was not significantly correlated with self-care during December or February. One thought as to why there are differences could be due to the small sample size, or perhaps self-care activities are perceived to be more accessible during the summer or people are more stressed during the winter, not just due to the seasonal

changes, but due to work stress and additional demands that occur during the winter like testing, final projects/papers, and grades. Anama-Green found a moderate correlation between intrapersonal mindfulness and STS. This may have a relationship with one of the subcategories of STS like intrusion. Self-efficacy was also found to be moderately correlated to STS (Rumsey, 2017) and was found to account for 34% of the variance for STS. Whereas years of experience was not found significant, self-efficacy was. One reason for this is typically years of experience may be used to comfort with position or self-efficacy; however, years of experience may not be indicative of self-efficacy in school personnel. Empathy was not significantly associated with STS (Rumsey, 2017) and Cognitive reappraisal was negatively associated with STS (Simon, 2020). The cognitive reappraisal may have a link with some of the subcategories of STS particularly intrusion.

Compassion satisfaction was the most common protective factor assessed in the STS school personnel literature with mixed results. Grybush (2021) found compassion satisfaction had a negative moderate correlation with STS. Steen (2019) and Hydon (2016) found a weak negative correlation between compassion satisfaction. However, Hydon (2016) did not find a significant correlation when using the STSS measure for STS. Compassion satisfaction may be found to have an association with STS due to the ProQOL including a compassion satisfaction domain. The one study where compassion satisfaction was not found to be statistically significant was when the STSS was used. If one uses Stamm's conceptualization of STS and STS is a subcategory of compassion fatigue, then compassion satisfaction and STS should be related. However, the STSS conceptualization is independent of compassion fatigue and draws from PTSD

symptoms. The discrepancy with compassion satisfaction makes sense conceptually; however, further studies should measure compassion satisfaction and STS using the STSS to see if it is a measure issue. There are quite a few potential personal protective factors, but further information needs to be collected so assess whether these findings are truly representative of school personnel in general.

School Factors

The other domain for protective factors includes the school factors. School factors assessed in STS school personnel literature include professional development, employers encouraging personnel to discuss stress with peers/ STS leadership practices, school safety, and trauma informed care. One study looked at professional development found that it was not significantly associated with STS (Grybush, 2021). Another school level protective factor assessed in the literature had to do with the leadership. Borntrager et al. (2012) found a weak negative correlation between employers encouraging personnel to talk about stress with peers, and the same article also found that this was statistically significant in the regression model. Similarly, Wilson (2020) found that STS informed leadership practices accounted for 28% of the variance for STS. Additionally, the fourth chapter found that supervisor support had a relationship with STS where those with less supervisor support had higher levels of STS. Based on the findings from Borntrager et al, Wilson, and the fourth chapter, it appears that supervisory support plays a role in decreasing STS. This is an interesting finding that is supported by STS literature outside of school personnel, particularly in the child welfare field. The fourth chapter did not find statistical significance for peer support or personal support for STS; however, future studies could further assess this.

Additionally, Wilson found that physical and psychological safety accounted for 34% of the variance of STS. Thus, a sense of safety accounted for STS, which makes sense since STS is a reaction to a perceived threat from a secondary source. An unsafe space in addition to a secondary exposure of trauma could compound one another. It should be noted that Stevens et al. (2020) did not find lockdown drills to have any interaction with STS. One potential reason is due to the limited sample size of this study.

Attitudes toward trauma informed care were also assessed in relation to STS. Christian-Brandt (2020) found that higher levels of STS was associated with perceived effectiveness of trauma informed care. Whereas Grybush (2021) did not find a significant association between trauma informed care and STS. So overall it seems like perceived safety is a protective factor; however, perceptions of trauma informed care have mixed results. Perhaps this is due to the broad definition of trauma informed care and many aspects that can be changes or modified in school practices to be more trauma informed.

The emphasis for chapter three and four were to explore the pervasiveness of STS in school personnel to determine how common it is to experience moderate levels of STS symptoms. The other priorities for chapter three and four were to determine what factors impact STS. Particularly what factors put personnel at a greater risk for developing STS and what factors reduce the likelihood of STS. Based on the integration of findings from chapter three and four, implications for school personnel and future research can be discussed.

Practical Implications and Future Research

Based on the findings from chapter three and four, there are some factors such as work hazards, working in the elementary setting, potentially having a history of trauma

that increases the risk of STS. Then factors like support, particularly support from the supervisor that decreases likelihood of STS. However, with so few studies conducted measuring STS in school personnel, a lack of consistent operationalization of variables, and a lack of generalizability, there is a need to replicate studies that have already been conducted. The following will first explore STS in school personnel and provide potential practical implications for assessing and intervening, then discuss the need for future research.

There has been little research that addresses intervention that address STS in school personnel within the United States. This section will explore some of the recommendations that have been suggested, limitations to those suggestions, and whether the findings from the systematic review and chapter four study empirically support those implications. Many of the recommendations focus on the individual or the school interventions; however, fails to consider what would be preventive versus what would be best reactive strategies to help those with moderate or higher levels of STS. Currently, there is no study that looks at formal interventions addressing STS in school personnel. Future studies should assess efficacy, or these recommended interventions and literature should begin to be gathered about evidence-based practices for school personnel and STS.

There has been quite a bit of emphasis on trauma informed schools with focus on supporting the students; however, less thought has been given to supporting personnel. Those that have provided recommendations for addressing STS have provided options at the individual level and school/community level. At the individual level self-care is often recommended (Lawson et al., 2019; Rankin, 2020). However, there is no empirical data

to support that self-care prevents STS or that self-care is a strategy for people who have moderate or higher STS. Bober and Regehr (2006) looked at STS among trauma therapists and found that there was no link between self-care and STS. Vanderwill (2021) found mixed results when assessing STS and self-care in school personnel. The sample size was small, so further studies with larger samples need to be conducted to determine if self-care is a viable option to address STS. Self-care should also be assessed if it functions as a proactive strategy to prevent the onset of STS to begin with, and/or if self-care functions as a reactive strategy and benefits those who have STS. A caveat to self-care is that it can be recommended, but it should not be the only intervention addressing STS. A critique of self-care as a recommendation from Bober and Regehr state, “when addressing the distress of colleagues, we have focused on the use of individual coping strategies, implying that those who feel traumatized may not be balancing life and work adequately and may not be making effective use of leisure, self-care, or supervision” (2006, p. 8) While symptoms of STS do manifest themselves at an individual level, there are many school and systemic factors that may contribute to higher levels of STS.

It does appear based on findings that perhaps the best means for intervention are with reducing work hazards or at least providing a clear policy in how to respond to work hazards and using supportive supervision. Wilson (2020) found that a sense of physical and psychological safety is related to STS. Trauma informed schools try to create a safe space for students and personnel; however, there are societal level factors that could be unseating a perceived sense of safety.

Sense of Safety

With the onset of COVID-19, schools were often a source of contention when it came to how to handle safety measures determining how to best protect students and personnel from the virus. The chapter four study collected data during December 2021 and January 2022 when the Omicron variant was prevalent, and it was clear it spread quicker but was unclear how dangerous the variant was at the time the data was collected. This could potentially have had an impact on the STS personnel felt; particularly if they felt that they or their loved ones were high risk for complications from the virus; thus, perceiving the school environment as unsafe.

There has been an increase in school shootings since 1970 there have been 2060 shootings with nearly half of those occurring within the past ten years (Center for Homeland Defense and Security, n.d.). Stevens et al. (2020) found that exposure to school shooting media was correlated with STS. Such additional factors could decrease the overall perceptions of safety within the school.

Other threats that may impact perceptions of school safety include school hazards. The fourth chapter found that work hazards were related with STS. Rumsey (2017) found that higher frequencies of secondary exposure accounted for 7% of the variance in STS. Simon (2020) found that working with students with socio-emotional difficulties had higher levels of STS. Stevens et al. (2020), found a correlation between verbal aggression toward teachers and STS as well as indirect aggression toward teachers and STS. Potential implications from these findings demonstrate the need to attempt to moderate the amount of exposure to verbal and physical aggression as well as secondary exposure.

School personnel, particularly those who are exposed to higher numbers of traumatized students or exposed to students and/or parents who are verbally or physically aggressive should have proactive and reactive strategies. Ideally preventing or limiting the occurrences are ideal but not always feasible. Adjustments like smaller class sizes, or more adults in classes to increase student to personnel ratios would be ideal or bus drivers having additional adults present during transportation would potentially decrease exposure to any single person. There should also be protocols in place for once an incident occurs to support the personnel. While an incident report is likely necessary, it would be prudent for the affected personnel to A) have allocated time and space to decompress from said incident, B) have a support person available if they need to talk or debrief, C) work with supervisor to create a support plan to provide clear instructions on how to respond (both personnel and supervisor) should something happen again, and if there are any additional support needed for the personnel D) be provided options and/or referrals if the personnel want additional mental health support. These steps integrate creating a physically and psychological environment, while also providing supervisory support.

Implications for Social Workers

Social workers often work in an interdisciplinary environment especially when in schools. Whether social workers are working on case management, skills, therapy, or advocacy, they are never doing so alone. Social work emphasizes the importance of human relationship and the need to support one another. Social workers are already used to linking others to resources, listening to others concerns, and advocating for change. These are all skills that are needed to effectively address STS in schools.

Social workers are often the mental health professionals in the school. Typically, they are focused on the students' mental health needs. Providing more insight into the pervasiveness of STS in school personnel could potentially expand social work's role in schools to not only be supportive of student mental health, but also personnel mental health. STS has profound short-term and long-term effects and there needs to be an increased awareness, and an increase in support when it comes to STS.

Another implication is that the social worker can assess for STS for those at the higher risks for developing moderate or higher STS. Based on the finding that would include personnel who are younger, working in elementary schools, have high exposures to traumatized students, and are likely to deal with students and or parents who are verbally or physically aggressive. Also due to the finding from Stevens et al. (2020), it may be useful to increase assessment for STS and or provide additional support after a school shoot occurred and was reported on in the media.

Future Research

Overall, there is a dire need for more information on STS in school personnel. Although there has been an increased interest in STS in school personnel in the past five years, there are still many gaps in knowledge STS specifically in school personnel. Future research needs to agree upon a consistent conceptualization and operationalization of STS, further explore factors that impact STS, assess STS in diverse populations and find samples that are more representative of the school personnel population, identify how job roles put personnel at higher risk for STS, and identify evidence-based prevention and intervention strategies for STS in school personnel.

Secondary Traumatic Stress and Variable Limitations

Currently, there is a lack of consensus on STS conceptually, there are some researchers who view STS as a subcategory of compassion fatigue and others who view it as its own construct focusing more on PTSD symptoms after a secondary exposure. Each of these conceptualizations have their own operationalization of STS. For STS as a subcategory there is the ProQOL and for STS as its own concept with PTSD symptom is the STSS. The difficulty with having two common instruments rather than one leads to more difficulty in translating and comparing the findings. This potentially leads to inconsistent results and an overall issue with the validity of STS.

Factors that increase or decrease STS need to be explored. Out of 18 quantitative studies there were many variables that had mixed results with their relationship to STS. For instance, variables like gender, whether a school was under resourced, and a history of trauma have mixed findings. Future studies need to be conducted to further assess if there is a relationship between various variables and STS. Additionally assess which of these variables has the greatest impact on STS presentation.

Sample

There is a need to gather more data on STS in diverse populations. Most participants were white. This could potentially lead to some skewed results. Also, it is unclear how STS potentially looks for various races and if certain races have significantly higher levels of STS. Diversity and STS is important to further assess due to the severe gap in literature. In addition to assessing STS in more diverse populations, there is a need for studies that provide a representative sample of the population of school personnel. This could be done by being intentional with random sampling among other strategies to

get a sample that has a greater ability to be generalizable. There is a need to explore subgroups of personnel. Most studies from the systematic review explored STS in teachers. There needs to be additional studies on other roles as well.

Prevention and Intervention

There is a huge gap in understanding evidence-based prevention and interventions for STS in school personnel. STS prevention needs to be better understood. Develop and assess interventions providing additional support to personnel experiencing moderate or higher STS. There needs to be evidence-based practices for personnel experiencing moderate or higher levels of STS. Secondary traumatic stress is an issue in school personnel and needs to be addressed. There has been a call to action for trauma informed schools for the students, yet the personnel have been excluded from the supports and resources. More information needs to be gathered, and more interventions need to be tested to reduce STS in school personnel.

Conclusion

Secondary traumatic stress can manifest in school personnel, yet there are many gaps in the current literature. The issue of STS needs to be further explored in school personnel and evidence-based practices and interventions need to be developed to prevent or address STS. Due to the lack of studies on STS and school personnel, fields with similar levels of STS and developed evidence-based interventions may be useful to combat STS in school personnel. The second chapter explored STS from a stress theory perspective, addressed the relevance of STS in school personnel to social work, and highlighted gaps in the literature. The third chapter consisted of a systematic review to analyze the existing literature on STS in school personnel. The fourth chapter focused on

a cross-sectional study analyzing the pervasiveness of STS and what factors are associated with higher levels of STS. This last chapter focused on integrating the findings from the previous chapters, address practical implications and highlight the need for additional research. STS is an issue for some school personnel and can impact one's health and mental health, by learning more about the phenomenon in school personnel, schools can become better equipped to prevent higher levels of STS or intervene to reduce long-term effects of STS in school personnel.

Appendix A

Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	

Section and Topic	Item #	Checklist item	Location where item is reported
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	
Study characteristics	17	Cite each included study and present its characteristics.	
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing	

Section and Topic	Item #	Checklist item	Location where item is reported
		groups, describe the direction of the effect.	
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	
	23b	Discuss any limitations of the evidence included in the review.	
	23c	Discuss any limitations of the review processes used.	
	23d	Discuss implications of the results for practice, policy, and future research.	
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	
Competing interests	26	Declare any competing interests of review authors.	
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

For more information, visit: <http://www.prisma-statement.org/>

Appendix B

JBI Critical Appraisal for Cross-Sectional Studies

JBI CRITICAL APPRAISAL CHECKLIST FOR ANALYTICAL CROSS SECTIONAL STUDIES

Reviewer_____

Date_____

Author_____Year_____

Number_____

Record

	Yes	No	Unclear	Not applicable
1. Were the criteria for inclusion in the sample clearly defined?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Were the study subjects and the setting described in detail?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Was the exposure measured in a valid and reliable way?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Were objective, standard criteria used for measurement of the condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Were confounding factors identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Were strategies to deal with confounding factors stated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Were the outcomes measured in a valid and reliable way?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Was appropriate statistical analysis used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Overall appraisal: Include ☐ Exclude ☐ Seek further info ☐

Comments (Including reason for exclusion)

EXPLANATION OF ANALYTICAL CROSS SECTIONAL STUDIES CRITICAL APPRAISAL

Analytical cross sectional studies Critical Appraisal Tool

Answers: Yes, No, Unclear or Not/Applicable

1. Were the criteria for inclusion in the sample clearly defined?

The authors should provide clear inclusion and exclusion criteria that they developed prior to recruitment of the study participants. The inclusion/exclusion criteria should be specified (e.g., risk, stage of disease progression) with sufficient detail and all the necessary information critical to the study.

2. Were the study subjects and the setting described in detail?

The study sample should be described in sufficient detail so that other researchers can determine if it is comparable to the population of interest to them. The authors should provide a clear description of the population from which the study participants were selected or recruited, including demographics, location, and time period.

3. Was the exposure measured in a valid and reliable way?

The study should clearly describe the method of measurement of exposure. Assessing validity requires that a 'gold standard' is available to which the measure can be compared.

The validity of exposure measurement usually relates to whether a current measure is appropriate or whether a measure of past exposure is needed.

Reliability refers to the processes included in an epidemiological study to check repeatability of measurements of the exposures. These usually include intra-observer reliability and inter-observer reliability.

4. Were objective, standard criteria used for measurement of the condition?

It is useful to determine if patients were included in the study based on either a specified diagnosis or definition. This is more likely to decrease the risk of bias. Characteristics are

another useful approach to matching groups, and studies that did not use specified diagnostic methods or definitions should provide evidence on matching by key characteristics

5. Were confounding factors identified?

Confounding has occurred where the estimated intervention exposure effect is biased by the presence of some difference between the comparison groups (apart from the exposure investigated/of interest). Typical confounders include baseline characteristics, prognostic factors, or concomitant exposures (e.g. smoking). A confounder is a difference between the comparison groups and it influences the direction of the study results. A high quality study at the level of cohort design will identify the potential confounders and measure them (where possible). This is difficult for studies where behavioral, attitudinal or lifestyle factors may impact on the results.

6. Were strategies to deal with confounding factors stated?

Strategies to deal with effects of confounding factors may be dealt within the study design or in data analysis. By matching or stratifying sampling of participants, effects of confounding factors can be adjusted for. When dealing with adjustment in data analysis, assess the statistics used in the study. Most will be some form of multivariate regression analysis to account for the confounding factors measured.

7. Were the outcomes measured in a valid and reliable way?

Read the methods section of the paper. If for e.g. lung cancer is assessed based on existing definitions or diagnostic criteria, then the answer to this question is likely to be yes. If lung cancer is assessed using observer reported, or self-reported scales, the risk of over- or under-reporting is increased, and objectivity is compromised. Importantly,

determine if the measurement tools used were validated instruments as this has a significant impact on outcome assessment validity.

Having established the objectivity of the outcome measurement (e.g. lung cancer) instrument, it's important to establish how the measurement was conducted. Were those involved in collecting data trained or educated in the use of the instrument/s? (e.g. radiographers). If there was more than one data collector, were they similar in terms of level of education, clinical or research experience, or level of responsibility in the piece of research being appraised?

8. Was appropriate statistical analysis used?

As with any consideration of statistical analysis, consideration should be given to whether there was a more appropriate alternate statistical method that could have been used. The methods section should be detailed enough for reviewers to identify which analytical techniques were used (in particular, regression or stratification) and how specific confounders were measured.

For studies utilizing regression analysis, it is useful to identify if the study identified which variables were included and how they related to the outcome. If stratification was the analytical approach used, were the strata of analysis defined by the specified variables? Additionally, it is also important to assess the appropriateness of the analytical strategy in terms of the assumptions associated with the approach as differing methods of analysis are based on differing assumptions

Appendix C

PROSPERO Protocol

Pervasiveness and protective factors for secondary traumatic stress in school personnel: a systematic review

Paige Klemme, Barbara Pierce

Citation

Paige Klemme, Barbara Pierce. Pervasiveness and protective factors for secondary traumatic stress in school personnel: a systematic review. PROSPERO 2021 CRD42021245180 Available from: https://www.crd.york.ac.uk/prospERO/display_record.php?ID=CRD42021245180

Review question [1 change]

What is the Pervasiveness of secondary traumatic stress (STS) in school personnel?

What are the protective factors of STS in school personnel?

What are the risk factors of STS in school personnel?

Searches

Databases include Google Scholar, PsycINFO, MEDLINE, EBSCO, ProQuest, ERIC, and SOCindex. Articles published after 1990

Search strategy

https://www.crd.york.ac.uk/PROSPEROFILES/245180_STRATEGY_20210325.pdf

Types of study to be included

This Systematic Review will only be looking at articles published after 1990, in English, peer-reviewed, and Qualitative, Quantitative, or mixed methods. Studies ineligible include grey literature, dissertations, unpublished papers, and conference abstracts.

Condition or domain being studied

Secondary traumatic stress has been described as symptoms that have been developed after exposure to another's individual trauma. The purpose of this systematic review is to better understand the exposures to potential risks that increase the likelihood of secondary trauma and identify protective factors to decrease the likelihood of secondary trauma.

Participants/population

School personnel will be defined as anyone who works for or is contracted out by a school or school system. The school or school system includes pre-k through high school. This systematic review will not include schools for adult education or universities. Additionally, this systematic review will not include studies that focus on the students, only the school personnel.

Intervention(s), exposure(s)

The focus of this review for Secondary Traumatic Stress and STS's protective and risk factors. This systematic review will exclude studies with the focus on compassion fatigue, vicarious trauma, and/or burnout.

Comparator(s)/control

If a study looks at STS in school personnel and additional groups that are non-school personnel, ex. child-welfare workers, the study will be included.

Main outcome(s)

1. The Pervasiveness of STS in school personnel
2. The risk factors of STS in school personnel
3. The protective/ preventative factors for STS in school personnel.

Measures of effect

Due to multiple measures being used for STS, and a lack of quantitative studies looking at STS in school personnel, measures of effect will not occur. This will strictly be a systematic review and not a meta-analysis.

Additional outcome(s)

None

Data extraction (selection and coding) [1 change]

Process:

1) Identify Papers from titles/ abstract. (title abstract screening) If uncertain, the title/abstract will be sent to the second author to determine eligibility). This will be tracked via an excel spreadsheet. To meet inclusion criteria, the abstract and/or title need to include secondary trauma or secondary traumatic stress. Additionally, the participants included in the study need be school personnel (This includes but is not limited to teachers, principals, school staff, school administrators, etc.). Additionally, the articles included need to have qualitative, quantitative, or mixed methods. Perspective articles, review articles, and grey literature will be excluded for the purposes of this systematic review.

2) Retrieve Papers

3) Determine if the full article meets inclusion criteria. To meet inclusion criteria, the abstract and/or title need to include secondary trauma or secondary traumatic stress. Additionally, the participants included in the study need be school personnel (This includes but is not limited to teachers, principals, school staff, school administrators, etc.). Additionally, the articles included need to have qualitative, quantitative, or mixed methods. Perspective articles, review articles, and grey literature will be excluded for the purposes of this systematic review.

4) Full-text screening (10% of articles will be assessed by the second reviewer). During this phase data, the following data will be recorded as a table in an excel sheet: definition of secondary traumatic stress (STS), objective/aims of the article, sample size, demographics, the method used, the measure used, the Pervasiveness of STS, and/or protective factors. Additional relevant outcomes will be recorded along with key findings related to STS.

5) Look at the reference list of retrieved papers that meet inclusion criteria and repeat the process for those that meet inclusion criteria.

Risk of bias (quality) assessment [1 change]

Two quality assessments will be used based on the method used since this systematic review includes qualitative, quantitative, and mixed methods.

1.) The CASP Qualitative Checklist will be used for the studies using qualitative methods.

2.) The JBI critical appraisal checklist for studies reporting cross-sectional data will be used since the main research question for this systematic review is looking at the pervasiveness of STS in school personnel.

The results of these assessments will inform the limitations reported in the synthesis section.

Two reviewers will be involved in this process. Any discrepancies between the reviewers will be discussed and the two will come to a consensus.

Strategy for data synthesis [1 change]

PRISMA checklist will be utilized

a. A table will be created for relevant articles including:

- i. Author(s)
- ii. Year of publication
- iii. Year(s) of data collection
- iv. Country of origin
- v. Study design
- vi. Analytic methods
- vii. Title
- viii. Journal
- ix. Aims/Objective
- x. Research Question(s)
- xi. STS definition-Conceptual and Operational
- xii. Population
- xiii. Sample Size
- xiv. Demographics

- xv. Outcome(s) measured
- xvi. Types of measure(s) for the outcome(s)
- xvii. Risk factors measured
- xviii. Risk factor measure
- xix. Protective Factors measured
- xx. Protective factor measures
- xxi. Interventions measured
- xxii. Intervention measure
- xxiii. Limitations
- b. This chart will be refined as necessary

The synthesis for the analysis section will be comprised of three subsections 1) quantitative, qualitative, and mixed methods. A narrative approach will be used for each subsection. Due to the various methods used, a meta-analysis will not occur.

Synthesis:

1. Definition- All studies will be used to determine a) conceptual definition of STS and b) operational definition of STS. This will be done due to the ambiguity between STS and similar concepts such as compassion fatigue. Microsoft Excel will be used to organize the definitions.

2. Pervasiveness- The quantitative and mixed methods studies will be used to determine the pervasiveness of STS. The main measures for STS are the STSS and ProQOL. The studies that use the STSS will be grouped into one set of data and the

ProQOL into the other set of data to determine pervasiveness. Microsoft Excel will be used to determine pervasiveness.

3. Protective Factors- All relevant studies that considered protective factors will be included. Due to the combination of qualitative and quantitative results the synthesis will primarily be narrative.

4. Risk Factors- All relevant studies that considered risk factors will be included. Due to the combination of qualitative and quantitative results the synthesis will primarily be narrative.

Microsoft Excel sheets will be used for categorizing the protective and risk factors.

Analysis of subgroups or subsets

Analysis of subgroups is yet to be determined.

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Type and method of review

Systematic review

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25 March 2021

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English

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Stage of review

Review Ongoing

Subject index terms status

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Subject index terms

Compassion Fatigue; Humans; Pervasiveness; Protective Factors; Schools; Stress

Disorders, Post-Traumatic; Workforce

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Stage of review at time of this submission

The review has not started

Stage	Started	Completed
Preliminary searches	Yes	No
Piloting of the study selection process	Yes	No
Formal screening of search results against eligibility criteria	Yes	No
Data extraction	Yes	No
Risk of bias (quality) assessment	Yes	No
Data analysis	Yes	No

The record owner confirms that the information they have supplied for this submission is accurate and complete and they understand that deliberate provision of inaccurate information or omission of data may be construed as scientific misconduct.

The record owner confirms that they will update the status of the review when it is completed and will add publication details in due course.

Versions

07 June 2021

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- Wilson, T. (2020). *School Counselor and School Social Worker Professional Quality of Life and Secondary Trauma Informed Practices in Missouri High Schools* (Doctoral dissertation, William Woods University).
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- Zubin, J., & Spring, B. (1977). Vulnerability: a new view of schizophrenia. *Journal of abnormal psychology*, 86(2), 103

Curriculum Vitae

Paige M. Klemme

Education

Doctor of Philosophy 2022

School of Social Work

Indiana University

Master of Social Work 2017

Concentration: Mental Health and Addiction

Indiana University-Purdue University Indianapolis

Bachelor of Science, Neuroscience 2015

Minors, Biology and Psychology

Indiana University- Purdue University Indianapolis

Practice Experience

Child Welfare Therapist, 07/2017- 10/2021

Adult & Child – 603 E. Washington St. Indianapolis, Indiana 46204

- Provide therapy to families and children involved with the Department of Child Services
- Utilize evidenced based practices such as DBT, TF-CBT, ACT
- Document sessions and report in a timely manner

Visitation Facilitator, 08/2016- 07/2017

Family Works – 3266 N Meridian St. #802 Indianapolis, Indiana 46208

- Provide supervised visits to families and children involved with the Department of Child Services
- Teach parents age-appropriate activities
- Document visits and report in a timely manner

Behavior Clinician II, 05/2015 to 7/2016

Tangram – 5155 Pennwood Drive, Indianapolis, Indiana 46205

- Develop behavior support plans
- Behavior collection and charting for quarterly reports
- Instruct behavioral support training

Direct Support Professional, 07/2011 to 8/2015

Tangram – 5155 Pennwood Drive, Indianapolis, Indiana 46205

- Actively engage in creating and maintaining a healthy and safe environment specific to each client
- Initiate effective communication with all team members
- Complete documentation in an accurate and timely manner

Academic Research and Presentations

Senior Undergraduate Capstone

Development of Astrocytes from Induced Pluripotent Stem Cells, Summary of the senior capstone project, methods- western blot for cell staining (Spring, 2015)

MSW Presentations

Tag your I.T., Analyze how organizations self-identify resources online by evaluating self-identified tags. Women's Research Poster Competition, Bloomington, Indiana (Spring 2016, Poster Presentation)

Online Collaborative Community Guide, Description of online notebook aggregating resources from multiple organizations. Rural & Urban Poverty & Its Effects on Health & Mental Health: Social Work Interventions, Memphis, Tennessee (Spring 2016, Poster Presentation)

The Role of Social Work in an Interdisciplinary Setting, Description of the social work role within an Interdisciplinary Setting. Society of Student Run Free Clinics Annual Conference, Anaheim, California (Spring, 2017, Poster Presentation)

Community Engagement: Intervention and Education, Integrating class curriculum with experience at the IU-SOC providing needed interventions, Bringle Civic Engagement Showcase (Spring, 2017, Poster Presentation)

PhD Presentations

Trauma and Mental Health at the IU-SOC, Authors: Paige Klemme and Dolapo Adeniji
Completed a needs assessment based on community member feedback for health and mental health services, experienced adverse childhood experiences, and barriers to services, PhD Symposium (Spring, 2018, Poster Presentation)

Trauma and Health Outcomes in Rural Areas, A secondary analysis looking at experienced levels of trauma in rural areas and then exploring health outcomes, PhD Symposium (Spring, 2018, Poster Presentation)

Creation of trauma Responsive Services for Indianapolis Metropolitan High School:

Using an Internal Design Team Method, Authors: Barbara Pierce, Wanda Thruston, and Paige Klemme. Focused on identifying needs for trauma-informed goals within a local high school utilizing community based participatory action research methods, Bringle Civic Engagement Symposium (*Spring 2019, Poster Presentation*)

Assessing Clinic Needs and Barriers, Authors: Paige Klemme, Dolapo Adeniji, and Hea-Won Kim. Compared racial differences in need for services and perceived barriers at interdisciplinary clinic, CSWE APM (*Fall, 2020, Poster Presentation*)

Academic Experience

Civil Practice Clinic (Spring 2016, Practicum)

- Online Collaborative Guide- Developed resources for Law students to always have available
- Present Policy Advocacy to law clinic and Representative
- Collaborated with Law Students to address client needs
- Grant searching

Adolescent Medicine/ Child Connection Clinic/ Diagnostic Clinic (2016-2017, Practicum)

- Collaborate with doctors, psychologist, dietician
- Provide family therapy services
- Address behavioral interventions

Leadership Education in Adolescent Health (LEAH) Fellow (2016-2017)

- Attend weekly seminar
- Lead two presentations

- Further develop professional skills

Health Resources and Services Administration (HRSA) Graduate Fellow (2016-2017)

- Work with Transitional Aged Youth
- Attend seminars
- Track clients met, and document

Service Learning Assistant, Indiana University School of Social Work at the Student Outreach Clinic (2016-2017)

- Grant writing
- Develop class and experiential learning within the IU-SOC
- Poster presentation and attending conferences
- Develop connections with community organizations

Teaching Assistant, SWK-S 600: Children Youth and Families: Assessing and Intervening trauma, risk, and resilience with children and youth (3 cr.), Indiana University School of Social Work

- Provided instruction as needed
- Assisted with gathering classroom handouts
- Provided additional resources for students

Graduate Assistant, Indiana University School of Social Work the Breakthrough Series Collaborative (2017-2019)

- Develop working relationships with community members

- Provide support to teams when developing their quality improvement projects for trauma responsive services using a Plan, Do, Study, Act method
- Engage in weekly collaborative calls

Graduate Assistant and Coach, Indiana University School of Social Work supported by Faculty's Bantz Fellowship (2018-2019)

- Facilitate Plan, Do, Study, Act method with Indy Metropolitan High School focusing on parent engagement
- Provide support to teams when developing their quality improvement projects for trauma responsive services
- Engage in weekly collaborative calls

Graduate Assistant, Indiana University School of Social Work supported by Faculty's Robert Wood Johnson Fellowship (2019- 2020)

- Facilitate Plan, Do, Study, Act method with teams
- Provide support to teams when developing their quality improvement projects for trauma responsive services
- Engage in weekly collaborative calls
- Analyze data collected

Graduate Assistant, Indiana University School of Social Work supported by Faculty's Robert Wood Johnson Fellowship (2020- 2021)

- Disseminate online survey regarding COVID and schools using Qualtrics
- Analyze data collected using SPSS and excel
- Assist with infographic development

Teaching Assistant, SWK-S 727: Introduction to Statistics in Social Science Lab, Indiana University School of Social Work (Fall 2021)

- Provide support and clear instruction to PhD students
- Emphasized practical data analysis skills using SPSS
- Instruct how to interpret and report results

Teaching Assistant, SWK-S 728: Multivariate Statistics in Social Science Lab, Indiana University School of Social Work (Spring 2022)

- Provide support and clear instruction to PhD students
- Emphasized multivariate data analysis skills using SPSS
- Facilitated secondary analysis

Adjunct Professor, SWK-S 472: Practice Evaluation (3 cr.), Indiana University School of Social Work (Spring, 2020, Spring 2022)

- Engaged students with curriculum around single subject design, needs assessments, and program evaluation
- Emphasized practical skills when working in an interdisciplinary setting
- Provide support and clear instruction to BSW students

Adjunct Professor, SWK-S 632: Children Youth and Families Practice I: Working with children impacted by violence in the family (3 cr.), Indiana University School of Social Work (Summer and Fall 2019, Fall 2020, Spring 2021, Fall 2022)

- Engaged students with curriculum around trauma related symptoms and behaviors
- Emphasized practical skills when working with children and families who have experiences abuse, neglect, and/or domestic violence

- Provide support and clear instruction to MSW students

Adjunct Professor, SWK-S 634: Groups and Community Based Practice with Children and Families (3 cr.), Indiana University School of Social Work (Summer 2020)

- Engaged students with curriculum around group and community-based practice with children and families
- Emphasized practical skills when working with children and families in group and community settings
- Provide support and clear instruction to MSW students

Other Projects

Mentee/Mentor Program Evaluation for Marion County Department of Child Services, 2018-2020

- Assist with development of online survey
- Distribute survey
- Analyze data

Prepare for Success Evaluation for the Indiana Department of Child Services, 2018-2020

- Assist with development of online survey
- Distribute survey
- Analyze data

National Child Welfare Workforce Institute (NCWWI) Student Evaluation for Social Work Students at IUPUI, 2018-2020

- Assist with the recruitment of participants
- Distribute pre and post survey
- Analyze data