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The History, Prevalence, and Implications of Burnout in Medical Residents

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**The History, Prevalence, and Implications of
Burnout in Medical Residents**

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A Capstone Project submitted in partial fulfillment of the
requirements for the Master of Science Degree in
Human Services at
Winona State University

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College of Education
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CERTIFICATE OF APPROVAL

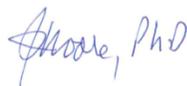
CAPSTONE PROJECT

The History, Prevalence, and Implications of
Burnout in Medical Residents

This is to certify that the Capstone Project of
Zoey Smith

Has been approved by the faculty advisor and the CE 695 – Capstone Project
Course Instructor in partial fulfillment of the requirements for the
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Abstract

Medical providers are often seen as infallible, setting a standard for professionalism and quality care. However, throughout history, it has been shown that from medical students to residents, to attending physicians there can be an overarching trend of burnout. Poor work-life balance impacts sleep and physical well-being, and high-intensity situations can leave those in the medical field feeling empty. Medical residents are a population that has experienced these occurrences for years. Studies have suggested that this can stem from residents having limited control in their situations while being trusted with immense responsibility. Historic context to why residency programs are run the way they are as well as an understanding of the difference between burnout and compassion fatigue is key to fully understanding the circumstances leading medical residents to potential burnout and severe stress reaction.

While some may view stress as inevitable and even at times favorable for medical residents it has been shown to have potential lasting consequences for the residents and the patients as well. This paper looks to review studies and articles in medical literature to address the following questions: (1) what is the history of medical residency programs? (2) What are the key defining features in burnout versus compassion fatigue? (3) What is the prevalence of burnout in medical residents? (4) What are the potential implications on both provider and patient of medical resident burnout? And (5) looking forward what can be done to prevent resident burnout?

Keywords: burnout, medical residents, Maslach, compassion fatigue

Table of Contents

<i>Abstract</i>	2
<i>Literature Review</i>	4
Medical Education	5
Fundamentals of Medical Education	5
History of Medical Residency	6
Creation of Medical Residency	7
Burnout Vs. Compassion Fatigue	8
Burnout	9
Compassion Fatigue	10
Prevalence of Burnout	11
Overall Prevalence	11
Burnout Factors	13
Implications of Burnout	16
For Residents	17
Libby Zion Case	18
For Health Care	19
Looking Forward	20
Workplace-Driven Interventions	21
Individual-Driven Behavioral, Social, and Physical Activities	22
<i>Conclusion</i>	24
<i>References</i>	26

The History, Prevalence, and Implications of Burnout in Medical Residents

Medical providers hold one of the most respected and trusted occupations in the world and throughout history. Physicians are often viewed as infallible and put on a pedestal. Patients depend on their medical provider to have skills and knowledge but also empathy and professionalism. Patients come to physicians at their most vulnerable and in their darkest hours to seek guidance and comfort in matters that are truly life and death. Yet, the history of medical education shows that it has not always been safe to assume this baseline knowledge. For years there was little oversight and guidance in the education of future physicians. Over the last 120 years, there have been policy and guideline changes that have shaped and changed the experience of medical education.

Research done over the course of residents' experiences in their residency has shown that there is consistent evidence of burnout among medical residents throughout their programs (Niku, 2004). Many factors impact this rate from the intense work demands, to the resident's limited control in their situations, as well as a high degree of home life interference. Research also shows that these high rates of burnout in residents have implications on physical and mental health as well as problematic patient care. During this stressful and sometimes overwhelming experience, it begs the question, what actions could be taken to relieve this mental and emotional burden on residents?

Through review and abstraction of literature over the last forty years on medical residency history, burnout, compassion fatigue, and implications. The following questions will be answered in this article: (1) what is the history of medical residency programs? (2) What are the key defining features in burnout versus compassion fatigue? (3) What is the prevalence of burnout in medical residents? (4) What are the potential implications on both provider and

patient of medical resident burnout? And (5) looking forward what can be done to prevent resident burnout?

Literature Review

Medical Education

In today's world of policies and procedures, it may be hard to imagine a system in place for the medical field that does not have checks and accountability. However, up until almost 125 years ago, there was no set standard of practice regarding much of the medical field (Howell, 2016). Included in this was the education and training of medical students and future clinicians, what we now refer to as medical residents and fellows. Many organizations and individuals have played a part in shaping the education process for future clinicians.

Fundamentals of Medical Education

A key portion of understanding medical education is understanding the process as a whole as well as the terms and titles used. Over time this process has changed and with it, the language used to discuss learning physicians has changed as well. To become an attending medical provider first individuals, receive a bachelor's degree, at this point, they may be considered a 'pre-med' student, but it is not required that they major in pre-medical sciences (Mowery, 2015). Following a bachelor's degree aspiring clinicians enter a four year medical school program, these programs are meant to provide two years of traditional in-class learning and two years of practical rotations to expose students to different medical specialties. These students are referred to as medical students and have not yet received the title doctor.

After completing their medical school degree, they have technically earned the title doctor but now enter their medical residency. This program can range from three to five years and vary based on specialty. Following the completion of their medical residency future

clinicians enter the final stage in their education as medical fellows (Ishak et al., 2009). During their fellowship, they have chosen a specialty and spend two to three years specifically learning their field. Once they have completed all their education and passed a variety of boards and licensing exams individuals are now considered attending physicians. This means they can practice in their specialty without supervision.

Above is a broad overview of what medical education in the United States as a whole looks like. However, it is important to note that certain subspecialties within medicine can have slightly different requirements. For example, there is a slight difference in education between a Medicine Degree (MD) or a Doctor of Osteopathic Medicine Degree (DO), these are the titles that are received post-medical school. MDs are trained to treat specific conditions with medication and therapy while DOs have a more holistic approach and use hands on techniques (Shannon, 2009). Certain programs may also require additional years of residency or fellowship while some programs require no fellowship at all. Medical education is a unique system within itself and is constantly changing.

Medical education in the United States spans over ten years and puts aspiring clinicians through many challenging and diverse situations. Nevertheless, medical education hopes to equip aspiring physicians with the education and experiences needed to succeed in their chosen specialties (Ishak et al., 2009). Continuing education is required to keep their license and involvement in research and education is a focus at many medical institutions.

History of Medical Residency

Similarly, to the entirety of medical education, the concept of medical residency has changed and evolved over time. As Howell (2016) explains during the early eighteenth and nineteenth centuries there was little to no true law and guidance regarding the education and

practice of medicine. It was not until the twentieth century that organization and education had increased. Medical residency is one of the more recent additions, only becoming an official step in the education process during the last century (Howell, 2016). It was during this timeframe the U.S. medical programs began offering more exposure to meaningful medical practices.

These early ‘residencies’ were not identified as such, they were referred to as interns and there was still little to no overarching supervision on what being a medical intern entailed. These initial internships were only a year-long and over the course of the year interns would participate in a variety of non-specialized care (Ishak et al., 2009). There was a period of overlap between the idea of internships and residencies. During this period of overlap most aspiring medical providers chose to do internships with only a minority choosing to do the live-in residency option.

Creation of Medical Residency

The creation of medical residencies grew from the reorganization of medical practice as a whole. During the turn of the nineteenth century, medicine began focusing more on categorizing care into specific subspecialties— surgery, cardiovascular medicine, pediatrics, oncology, and so on (Howell, 2016). With this shift to more separated care there was also a shift in medical education, residency, or specialties programs started appearing to train physicians in their chosen field. Initially, residencies were hospital-based and often residents would “reside” in housing supplied by the hospital. Being on call could potentially mean a resident was available 24-hours multiple days a week in this setting (Niku, 2004). Residents were often not paid beyond room and board and if they were it was the bare minimum. It was not until closer to 1975 that more physicians would choose the residency option.

Over the years pay has been increased for medical residents as well as limits put on the number of hours that they can work. The number of medical residencies offered has grown and there are now dozens available to future physicians (Niku, 2004). There are now multiple accreditation programs that follow similar guidelines and require residency programs to adhere to ethical and education principles (Ishak et al., 2009). Nearly all physicians now attend a residency program and the majority of states require it for full licensure.

The modern medical residency has grown and developed since the early stages of internships and live in residencies (Niku, 2004). Modern residencies are highly competitive, high academic achievement, doing well on the medical college admissions test, strong letters of recommendation and more are required just to receive an interview at many medical residency programs in the U.S. Once matched with a residency programs, residents will spend three to four years being supervised by an attending physician. After completion of their medical residency residents are eligible to become board certified and either enter the fellowship or attending phases for their specialty. Over the course of their medical education, it is far from uncommon for future clinicians to experience burnout, compassion fatigue, or both.

Burnout Vs. Compassion Fatigue

Terms like burnout and compassion fatigue on the surface sound similar, but when talking about the impacts and recovery for both it is important to note they are two very different syndromes. Over the last 30 years, studies have been done on the nuanced differences between the two and what needs to be done to help individuals recover. These differences are key because a medical resident who experiences burnout will show different signs and experience different symptoms than one who is experiencing compassion fatigue, and they require different coping and recovery tools.

Burnout

The original construct of burnout was developed initially by a group of occupational psychologists as a way to describe a pattern of behavior and response observed in human services workers (Niku, 2004; Tait et al., 2012). In 1974 psychologist Herbert Freudenberger published an article entitled “Staff Burnout” which was one of the first articles to publicly dive into the idea of work stress impacting satisfaction (IsHak et al., 2009). Over the years many studies, observations, interviews, and analysis were done to refine and define what burnout it is. According to Niku (2004) currently in a broad sense, burnout is defined as a pathological syndrome in which prolonged occupational stress leads to emotional depletion and maladaptive detachment.

Maslach et al. (1997) went further to defined three dimensions of burnout; emotional exhaustion, depersonalization and cynicism, and feelings of inefficacy. Emotional exhaustion would be defined as an individual’s energy being depleted by the overwhelming demands from work. Depersonalization and cynicism are trademarked by a person detaching from their work, while the feelings of inefficacy are defined as a feeling of lacking personal achievement (Maslach et al., 2003). All three of these dimensions can in theory exist at the same time meaning that burnout can feel continuous for those experiencing it (Shanafelt et al., 2012).

One of the key differences between burnout and compassion fatigue is that burnout is not inherently trauma-related (Marshall, 2011). Individuals with any career and in any field can experience burnout in their workplace. These effects can present themselves gradually over time. Burnout can appear in many ways and is not a one-size-fits-all syndrome. Burnout can present as decreased productivity and decreased job satisfaction.

Once burned out is experienced some steps can be taken to help reduce and overcome the symptoms. Creating a support network and reaching out to others for help can help ease the feeling of isolation for those struggling with burnout (Niku, 2004). While not always the easiest option for medical residents finding a balance between work and personal life as well as potentially taking time off from work has been found to reduce the impacts of burnout in the short term while other longer-lasting solutions can be found (Marshall, 2011).

Compassion Fatigue

The first time a difference was noted in literature between burnout and compassion fatigue was in 1992 by C. Johnson who during a study on nurses. Johnson (1992) noted that some populations had higher rates of chronic fatigue, irritability, dread of going to work or working with specific patients, and lack of enjoyment in their lives. Since then it has been coined different terms including ‘vicarious traumatization’ (Figley, 2002) or secondary traumatization. Compassion fatigue stems from a strain or overexposure of working with those suffering from a variety of traumatic events. It can happen overtime or stem from one case that triggered the emotions.

Compassion fatigue can really be looked as through the lens of it being a relationship between a caregiver and a patient (Marshall, 2011). It has been seen to some as the ‘cost’ of caring for other individuals that are experiencing trauma and deep emotional pain. Paice (2007) defines compassion fatigue as; “when health care professionals are constantly exposed to human suffering.”

Signs of compassion fatigue can change from individual to individual, but it has been found that the following signs are the most common (Figley, 2002). Sadness and grief, reduced

ability to show empathy towards patients, addiction, nightmares, sick days, change in beliefs, and the potential for either increased or decreased arousal and intimacy.

Compassion fatigue can be the stepping stone to burnout for some and for others it can co-occur with burnout or be a stand-alone syndrome. Studies have found that support from a palliative care team and early intervention can help those experiencing compassion fatigue overcome the feelings early on and prevent it from developing further (Marshall, 2011). It has been found as well that basic care techniques of exercising, sleeping, and proper nutrition can help individuals manage their symptoms.

Prevalence of Burnout

Based on Maslach et al.'s (2003) work into burnout it is known that occupational stress can cause burnout when the autonomy of the individual is also low. When looking at modern medical residency it is clear that residents are frequently challenged with work-home interference, high demands, and low autonomy. This situation can lead to burnout among residents.

The research discussed in this section examines a variety of medical specialties including internal medicine, anesthesiology, surgery, orthopedic surgery, and family practice. The research examined has been chosen to represent a variety of specialties within medical residency, studies have found a similar rate of burnout among medical residents (Collier et al., 2002; Dyrbye et al., 2014).

Overall Prevalence

In 1998 Collier et al. (2002) conducted a national survey that was distributed to all residents. This was done via residency directors for the Resident Services Committee of the Association of Program Directors in Internal Medicine. The purpose of this study was to identify

personal factors associated with resident stress. The study had a very low response rate of only 18% which when compared to other physician surveys is below average. However, this study is of note because 61% of respondents did report having become more cynical and 23% reported feeling less humanistic since beginning their medical residency. Nevertheless, due to the low response rate these results are not entirely generalizable as the results could have been influenced by the rate of nonresponse.

Additionally, a study done by Nyssen et. al in 2003 administered the emotional exhaustion Maslach Burnout Inventory (MBI) to 119 anesthesiology residents at various levels of training in the Belgium University Network. They had a response rate of 48% and chose to report their burnout distribution by age rather than by training level. Of note was that 47% of trainees younger than 30's responses showed high emotional exhaustion sub-scores on the MBI. Nyssen et al. (2002) noted that the majority of medical residents are between the ages of 26 to 30.

Tzischinsky et al. in contrast examined their population by trainee level in their 2002 survey on 78 multispecialty residents in Israel. They found that the mean burnout scores increased from baseline to postgraduate year one but then decreased after two years. This finding and characterization of the natural progression of medical resident burnout is consistent with showing that residents became more distressed, fatigued, and angry as their years progressed. Dyrbye et al. (2014) conducted a national survey in the US of medical students, residents, fellows, and attending physicians as well as a probability-based sample of the general US population. All the surveys assessed burnout, symptoms of depression, suicidal ideation, quality of life, and fatigue. The response rate among residents and fellows was 22.5 percent which was comparable to the response rates of the other groups surveyed.

Dyrbye et al. (2014) noted that based on the response results residents and fellows were associated and scored high on burnout. While current physicians scored the lowest of the three groups in all areas. Residents were more likely to be burned out than the general population control sample and were more likely to exhibit symptoms of depression but not more likely to experience suicidal ideation. The literature and current studies suggest that training appears to be the peak time of distress and burnout among physicians.

Burnout Factors

While current research is comprised of mainly small, cross-sectional surveys or specific resident populations there also shows associations between burnout and demographic factors, work characteristics, and personality characteristics (Tzischinsky et al., 2001). It is important to note that burnout and compassion fatigue are more modern separations, so literature dating 20 years or older may combine the two terms into one. This impacts the approach that has to be taken when considering the impact of different factors on burnout prevalence.

Demographic Factors Research has shown that there is the potential for demographic factors that can impact the potential rates of burnout and stress in medical residents. Bertakis et al. (2001) looked at the impact that gender identity played in rates of burnout in medical residents. Their study focused on the current knowledge that women have a higher rate of depression in their lifetimes and there historically has been research that connects the rates of depression with rates of burnout. However, during their research, it was found that women do not have a higher rate of burnout than men (Bertakis et al., 2001). Over the course of the last twenty years, there has been additional research about the impact of gender on rates of burnout with mixed results. Some studies have found no difference in rates of burnout while other studies have noted higher rates of burnout among men (Niku, 2004).

Marital and family status are additional factors that have been found to impact the potential rates of burnout. Martini et al. (2004) showed that there was a statistical difference in rates of burnout between married individuals and those who were single, divorced, or unmarried. 65.2% of residents who had never been married, were single or divorced met the criteria for burnout while 40.0% of residents who were married or in a committed partnership met the criteria (Martini et al., 2004).

While parenting had a positive effect on burnout, showing that residents who had children at home had lower rates of detachment and depersonalization possibly due to the humanizing effect parenting can have on individuals (Martini et al., 2004). Collier et al., (2002) found similar results that having children during residency lowered rates of depression and cynicism in medical residents.

Not all research is conclusive on the impact of certain demographic features on burnout. Purdy et al. (1987) surveyed family medical residents and found that there was no association between the rates of burnout experiences and financial debt, number of children, marital status, gender identity, or wellness habits. Rather what impacted the scores were having an emotional support system and having a spouse who was not employed (Purdy et al., 1987). Niku (2004) argues a similar narrative that due to the cross-sectional nature of many of the studies currently done on medical resident burnout the interpretability is limited making it difficult to determine whether the burnout is a consequence or cause of the spousal employment decisions, childlessness, or their financial situation.

Work Characteristics During medical residency the perceptions and reactions to stress that residents have can be produced by their work characteristics and this can lead to predisposing them to burnout. Research suggests that residents work conditions that are high

intensity, high work demands, and a feeling of no control over their work can trigger burnout (Linzer et al., 2001). Purdy et al. (1987) reported that family medical residents stated that time demands was the leading cause of their feelings of burnout.

Biaggi et al. (2003) found that one third of medical residents reported feeling overburdened by the workload often. During the same study they found that 69% of residents rated the intensity of their work as “high”. Biaggi et al. (2003) reported that lack of time off, no flexible work hours, lack of opportunities for learning, and low adequate feedback also impacted resident workplace satisfaction.

Nyysen et al. (2003) stated in their report that they explored the rates of stress, burnout, and residents’ ratings of their work characteristics. They found that residents reporting a higher rate of burnout also reported a higher rate of stressful work characteristics. Noting specifically a lack of control over their own time as well as poor workplace time management. A lack of work planning, work organization, and inherently difficult job situations.

Dmitri et al. (2004) reported similar findings regarding the sometimes 80-hour workweek inflicted on some residents. The study focused on the transition from a 100-hour workweek to an 80-hour workweek. They found that resident emotional exhaustion did change however the depersonalization and personal accomplishment did not show statistical significance. Rates of burnout were still high among the residents even after the change in work schedule.

Personality Characteristics Many individuals pursuing a career in medicine are likely to be described as highly motivated. While those intense and goal-oriented personality traits can assist them in their field new research has linked certain personality traits to higher rates of burnout. Marshall (2011) found that residents who self-described as highly motivated with an intense involvement in their work were more likely to experience burnout than their peers. IsHak

et al. (2009) discussed that residents with inherent personality traits such as neuroticism and introversion have difficulty creating the interpersonal relationships required to effectively navigate burnout and emotional exhaustion.

Spickard et al. 2002 found differing results in that providers who demonstrated the compulsive triad of doubt, guilt, and an exaggerated sense of responsibility had difficulties attending to their personal relationships and developing a work-life balance. These medical providers have the chronic feeling that they are not doing enough and as a result it leads to a self-destructive pattern of overwork. These patterns of behavior lead medical providers to feeling guilty about pleasure and may feel selfish when taking care of their own health and wellbeing.

Lemkau et al. (1988) discussed differing results that medical residents who scored high in narcissistic, histrionic, and compulsive personality traits were not correlated with burnout. However, they found that residents with avoidant, dependent, antisocial, or passive-aggressive personality traits were likely to have higher burnout scores as a whole. While research on personality characteristics impact on rates of burnout in medical residents is limited potentially due to the nature of the research needed, it is difficult to know if the personality traits were there before entering residency or developed due to burnout and workload (Lemkau et al., 1988). Further research focused on changes in personality characteristics and the impact on burnout could illuminate further prevalence and prevention.

Implications of Burnout

Burnout is not something that happens in a vacuum, only impacting the person experiencing those feelings. Rather burnout can have potentially severe consequences on those around the individual as well. Residents who experience burnout not only face potential long term physical and mental impacts but also can potentially put their patients at risk as well. From

the resident to the patient burnout can have lasting consequences as shown in the Libby Zion case.

For Residents

Physical and mental health are both at risk during prolonged states of burnout in individuals (Shanafelt et al., 2012). Individuals in a burned-out state may also have higher rates of depression, suicidal ideation, plans, and attempts (Firth-Cozens, (1987). Physical health can be impacted as well by continued time spent burnt out. These risks can include insomnia, appetite changes, colds, flu, fatigue, headaches, and gastrointestinal distress. In more severe cases physical symptoms can even present as cardiovascular disease and increased inflammation biomarkers (IsHak et. al., 2009).

Mentally burnout can take a large toll on residents, Collier et al. (2002) found that 23% of residents they surveyed responded that they had become less humanistic over the course of their medical residency. From the same population, 61% expressed that they felt or had been told they had become more cynical. An estimated 30-40% of residents have marital or relationship problems that they did not have before their residency (Mayers, 1997). Keeve (1984) found that 1.4% of residents take leave from their programs annually. Within that 1%, there are 12% hospitalized, 3% attempted suicide, and 2% were treated for drug or alcohol problems.

Goebert et al. (2009) found that in 2003-2004, 5.7% of medical residents surveyed reported suicidal ideation. Many cases of suicidal ideation, plans, and attempts likely go unreported every year. In 2014 two cases made national news after two residents in New York committed suicide. However, Goebert et al. (2009) note that no changes were made to medical residency following this media coverage and many more residents experience these emotional difficulties every year without reporting.

Libby Zion Case

The death of Libby Zion in 1984 and the resulting Libby Zion law is a key example of the impact the burnout in medical residents can have on the care they provide. In 1984 18-year old Libby Zion was admitted to the hospital in New York City (Philibert et al., 2002). While there she was treated by first-year resident Weinstein, second-year resident Stone, they were not supervised by any attending physicians. Both residents had been awake for over 24 hours and were responsible for multiple floors of patients that evening.

Both residents were unable to determine Zion's illness, they consulted with her primary physician over the phone and prescribed her a set of medications. After the administration of the initial dose of medication, both residents had to leave one to attend to other patients and the other to finally rest. Throughout the night Zion's condition, Weinstein was woken up and informed of the situation and decided without seeing the patient to have Zion restrained and more medication administered (Philibert et al., 2002; Spritz, 1991). By the morning Zion's condition has worsened to the point where there was nothing that could be done, and she had a cardiac arrest and passed away (Asch & Parker, 1988).

This created a major paradigm shift in the experience of residents as a lawsuit was brought against the hospital for the death of Zion, the family alleged that inadequate staffing and supervision was what led to their daughter's death. The New York City court found that there was some basis in the claims and issues work hour restrictions on residents in New York City (Spritz, 1991). These restrictions set forth the rules that residents could no longer work more than 24 hours straight and limited the workload to 80 hours a week (Philibert et al., 2002).

In 2003 these restrictions were adopted at a national level by the Accreditation Council for Graduate Medical Education that also restricted the hours residents could work (Asch &

Parker, 1988). There has been much debate since the incident and following legal battle about who was responsible for the death of Zion. The medical reaction that caused her death was not widely known at the time and many states that even experienced physicians would have not known about the contraindication of the medication (Asch & Parker, 1988). However, many agree that creating a system of guidelines to protect medical residents from overwork and exhaustion was needed (Spritz, 1991).

The case of Libby Zion is an example of the potentially harmful and deadly consequences of resident burnout. Debate aside the consensus among many professionals has been that the two residents should never have been staffing that long and been alone at that point in their training (Asch & Parker, 1988; Spritz, 1991).

For Health Care

Proven by the Libby Zion case the burnout of medical residents does not solely impact the residents themselves. It has potentially dangerous consequences on patients and healthcare teams. Mowrey (2015) found that residents who worked 30-hour shifts were made over 36% more serious medical errors than their peers working 16-hour consecutive shifts. Baldwin et al. (1997) found similar results when they surveyed residents, they found that feeling overwhelmed and burnout resulted in higher self-reports of minor mistakes compared to residents who did not report feelings of burnout.

In a larger cross-sectional study done of both medical students and medical residents it was estimated that between 10-18% showed signs of work impairment, residents and students reported that they did believe it impacted their work performance, but when asked if they would voluntarily seek professional help many said no despite the impact on their work as residents (Aiken et al., 2002).

In 2008 Halbesleben & Rathert conducted a study that surveyed pairs of patients and their attending medical residents who had been hospitalized in the last year. Once they controlled for the severity of illness and demographic factors they found that patients with a resident that scored high for depersonalization burnout had lower patient satisfaction and longer recovery time post-discharge. Research supports that high burnout can be associated with adverse patient outcomes as well as affecting the residents themselves (Aiken et al. 2002) and poses the question of what potentially can be done to support both the residents and in turn positively impact patient care?

Looking Forward

Currently, the data that is available on prevention and intervention regarding resident and physician burnout is lacking. Although there have been several interventions studied regarding other healthcare populations and fields there have been exponentially less focused on those going through the medical education process. The barrier to this is multi-faceted, however. Residents who already have shown rates of burnout and limited time may feel as though they do not have time to complete multiple surveys, intervention courses, or therapy groups (McCue & Sachs, 1991).

To truly have a complete view on potential interventions and prevention looking forward more research needs to be done. Nevertheless, at this time existing research shows that current interventions for medical resident burnout fall into two major categories; workplace-driven interventions and individual-driven behavioral, social, and physical activities (IsHak et al., 2009).

Workplace-Driven Interventions

Many researchers believe that there needs to be more work done to emphasize the importance of the entire learning environment for medical residents. This includes the relationships they have with attending providers and faculty, adequate time for coursework and intellectual stimulation, as well as a reasonable patient load (Frei et al., 2010).

Currently, the Accreditation Council for Graduate Medical Education (ACGME) sets forth certain requirements for medical education from limiting hours worked and on-call to requiring residents to maintain a case log to track their involvement in certain procedures and compliance with guidelines. Though many studies have shown the work hour demands to be one of the causes of burnout in residents a study done in 2004 by Gelfand et al. found little difference when work hour reduction was implemented.

In 2004 Gelfand et al. looked at the impact work hour limitations could have on burnout rates in medical residents. One week prior to the implementation of the work hour changes residents were surveyed, between 50% scored high on emotional exhaustion and 56% scored high in depersonalization. Six months after the reduction in hours the same group of residents were surveyed. 47% scored high on emotional exhaustion and 70% scored high on depersonalization.

In a review of 14 research studies, Frei et al. (2010) found that established mentoring programs that are incorporated into residency programs help to reduce burnout significantly. These mentoring programs focused on providing career counseling, increase students' interest in research, and supported them in their personal and career growth (Frei et al., 2010).

McCue & Sachs (1991) implemented a 4-hour long workshop where they trained 43 medical providers from different subspecialties on stress management. The focus was on

personal management, relationships, outlook, and stamina skills. They observed a decrease in emotional exhaustion scores six weeks after the course. Likewise, Ospina-Kammerer and Figley (2003) held a 4-week seminar for 24 family practice residents where they learned stress reduction techniques. The intervention group showed a decrease in the mean MBI scores.

Processing groups for residents and providers where they can have a protected setting to discuss issues that are professional and sometimes personal in nature have been shown to help combat burnout as well (Debrow et al., 2006). These processing groups help to foster work-related relationships which have been proven to help create a sense of pride in their work and commitment to their organization which can help prevent depersonalization.

Individual-Driven Behavioral, Social, and Physical Activities

Workplace-driven changes alone cannot entirely alter the prevalence of burnout in medical residents, research has found that individual-driven changes are also needed to make a difference (Frei et al., 2010). Ozbay et al. (2007) identified that focusing on fostering emotional intelligence can greatly benefit individuals when faced with difficult and high-stress situations. Individuals who had high emotional resiliency scores were found to be able to shift the focus from stress to successful adaptation. Similarly, it has been shown that individuals who spend time doing activities that help them reinforce their compassion satisfaction reported lower rates of compassion fatigue and depersonalization (Ozbay et al., 2007).

Research suggests that residents who can spend time fostering a life outside of work can maintain their compassion satisfaction and resiliency (Brennan, 2015). These activities can be specific to the individual, but it can be as simple as spending time with loved ones and children, exercising three to five times a week, or regularly seeking mental health counseling (Dabrow et al., 2006).

Along the same lines, Maslach (1976) found that individuals who developed close relationships with their peers reported lower rates of stress. Having peer support during challenging cases was found to help residents feel validated. Brennan (2015) showed that residents who regularly discussed care, laughed, and vented with their colleagues show decreased rates of personal anxiety and in the long-term lower rates of burnout during their residency.

Brennan (2015) and their colleagues designed and implemented active learning sessions based on this information. The sessions were aimed at helping individuals learn skills that they could to help them feel less stress, more supported, how to incorporate self-reflection, developing and practicing coping skills, identifying personal strengths, and connecting with what gives each person meaning to their work. Other portions of the sessions focused on preventative emotional care and how to develop and maintain social connections with peers and those outside of medicine. They found that residents who participated in these sessions had overall higher rates of work satisfaction, reported feeling less anxious and stressed regularly, and overall showed lower signs of burnout (Brennan, 2015).

Another study found similar results when examining the impact of meditation and stress among health care professionals (Galantino et al., 2005). Results showed that physicians and residents who regularly practiced meditation showed improved mood and emotional states. Galantino et al. (2005) also showed that physical exercise also helped providers to relieve the impacts of anxiety and depression.

Macaskill & Macaskill (1992) established as well that residency programs that encouraged and supported personal psychotherapy for residents helped residents to explore occupational challenges and increase their self-awareness which resulted in lower rates of

emotional exhaustion and burnout. Regarding individual-driven interventions research shows there is a multitude of options available for residents that can be used to create a boundary between work and home and help residents to establish healthy coping strategies. Each solution is unique to the resident but exploring and fostering these options and personal skills can help residents avoid the impacts of burnout (Macaskill & Macaskill, 1992).

Conclusion

Over the last 120 years, the landscape of medical education has changed and adapted in many ways. However, burnout among medical residents remains a prevalent concern with a lasting impact not only on the residents themselves but also on the patients they are meant to serve. While there is an increasing amount of research being done on the topic of emotional health in medical residents there is still a stark lack of information regarding how to prevent and help residents cope when burnout does occur. The understanding of resident burnout would be enhanced by more rigorous and widespread research.

When looking towards the future of medical education and research future studies would benefit from studying larger samples of residents as well as examining the relationship between burnout and depression, suicidal ideation, poor clinical performance, and career decisions. The research focused on the impact of resident burnout on healthcare institutions as a whole could be of benefit as well. Focusing on the potential benefits of interventions, reform policies, and work hour restrictions on personal and fiscal benefits of healthcare.

History has shown that burnout in medical residents is not a new phenomenon and that over time it truly takes a toll on the individual and puts the people they provide care to at risk. Working from an individual and workplace level to help prevent burnout and create positive interventions for when burnout occurs could help benefit all of those involved in the health care

system. Helping residents find balance and positive mental health will improve not only their lives but the lives of their patients as well. In the words of Maslach (1982) “If all of the knowledge and advice about how to beat burnout could be summed up in 1 word, that word would be balance—balance between giving and getting, balance between stress and calm, balance between work and home.”

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