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Review

Physician burnout: An emergent crisis

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Every 24 h, one physician commits suicide in the United States, making it the profession with the highest suicide rate [1]. In addition, physician drug abuse has been a growing issue, with surveys showing that at least 17% of physicians surveyed personally knew an impaired colleague [2]. The higher rates of suicide and substance abuse among physicians compared to the general population and other professionals have been linked to continuous stress from work challenges [3,4]. (See Fig. 1.)

Burnout is a work-related syndrome that affects nearly 50% of physicians in the United States [5]. The term "burnout" was coined by the psychologist Herbert Freudenberger in the 1970s. Since then, its definition has been modified and described by various schools of thought. Burnout, as it is most commonly understood today, is defined by the Maslach Burnout Inventory (MBI) as three main characteristics:

1- Emotional exhaustion,
2- Depersonalization, and
3- Lack of personal accomplishment.

Emotional exhaustion describes the state of feeling "emotionally overextended," leading to fatigue and other physical consequences. Depersonalization results in impersonal interactions and detachment from those one works with. The loss of empathy is also associated with cynicism. A low sense of personal accomplishment deteriorates a physician's motivation to continue working, likely due to failure despite one's efforts [6].

As of now, there is no consensus on how to clinically diagnose burnout, but the MBI is the most widely accepted questionnaire for identifying burnout symptoms for scientific research purposes. The MBI, in this case targeted towards physicians, asks participants to evaluate how frequently they relate to statements from 0 (Never) to 6 (Every Day). Statements such as, "I feel emotionally drained by my work" and "I feel I work too hard at my job," are used to assess emotional exhaustion. Questions such as "I don't care about what happens to some of my patients" and "I feel tired in the morning when I think about facing another day at work" evaluate the extent of depersonalization. The sense of personal achievement is measured by evaluating if one "feels full of energy" or "looks after patients' problems effectively." [40] Based on the participant's score on these types of questions, the person is classified as having low-level, moderate, or high-level burnout. Critics of the MBI state that its validity is poor [7] and not derived from strong clinical observation [8]. Therefore, some prefer the Burnout Measurement, or the less widely-used measurement system, the Hamburg Burnout Inventory (HBI). The Burnout Measurement, also known as the Tedium Measurement, uses statements such as "I am unhappy," "I feel hopeless," and "I feel energetic" to assess burnout [41]. These questions are more undifferentiated than MBI, although they are reliable and valid [7]. Together, the Burnout Measurement and the MBI make up the majority of published studies on burnout [9]. The HBI measures ten aspects: Emotional Exhaustion, Personal Accomplishment, Detachment, Depressive Reaction to Stress, Helplessness, Inner Void, Tedium, and Inability to Unwind, Overtaxing Oneself, and Aggressive Reaction to Stress. As such, it covers a wider scope and more detailed set of conditions [7].

The lack of consensus on the best way to measure burnout is not the only reason why burnout has been challenging to diagnose. Because burnout has not been studied for as long and as widely as other disorders like depression, it has not been fully accepted into the medical community. Another main difficulty is that some symptoms of burnout overlap with depression, anxiety disorder, and chronic exhaustion syndrome, making it difficult to pinpoint the cause of the symptoms. The most notable point of debate is whether there is a difference between burnout and depression. In Wurm's study on depression-burnout overlap, the Major Depression Inventory was compared to HBI, and it assessed Sadness, Lack of Interest, Lack of Energy, Lack of Self-Confidence, Bad Conscience, Tedium, Concentration Deficits, Changed Activity, Sleep Disturbances, and Changed Appetite. Research on workers of multiple occupations shows a positive correlation between depression and burnout. Studies on depression-burnout overlap conclude that one's risk for depression increases with higher-level burnout [8,10–12]. Furthermore, the MBI components of emotional exhaustion had a higher correlation with depression than with the other MBI aspects of

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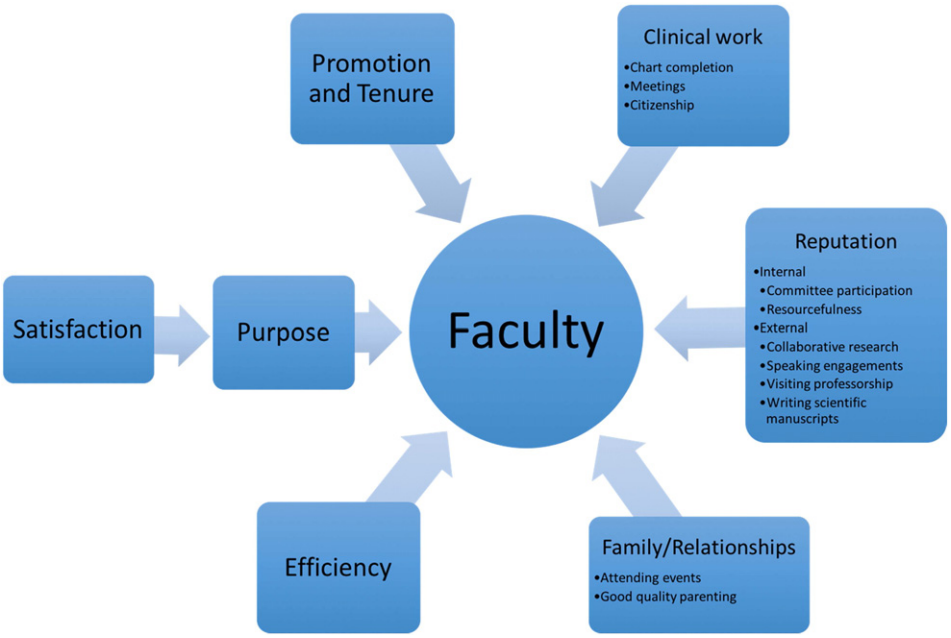

Fig. 1. Numerous stressors are constantly acting upon physician faculty members. These personal and professional factors can strain the physician until the point of burnout, depression, substance abuse, suicide, or a mixture of these. With the limited amount of time in a day and the many expectations and responsibilities, whether self-imposed or not, physician burnout has become a prevalent and serious problem in the medical field.

personal accomplishment and detachment [8]. Both are reported to produce extreme exhaustion, poorer performance, and sadness [15]. Despite this, researchers have concluded that depression and burnout symptoms are not isomorphic [13] and therefore separate disorders, despite their common characteristics [14]. One distinction is that burnout involves feelings of alienation from work, rather than from all aspects of life like with depression [15]. In addition, depression and burnout do not have to exist simultaneously. A study on workers representing a variety of professions (56% private, 28% municipal, and 14% governmental) in Finland showed that, of the group with severe burnout symptoms, half were diagnosed with depression while the other half were not [11]. Determining how depression and burnout are similar and distinct is significant in the understanding of burnout. Consequently, further efforts need to be made to study the causes, characteristics, and consequences of burnout.

1. Burnout in Medicine

Burnout is a serious issue concerning medical professionals and healthcare today because of its effects on physician well-being and quality of care. It can result in poorer patient care, lower productivity, and reduced professionalism [8,16]. The high physician suicide rates of 300–400 per year in the United States have been linked to burnout and indicate an urgent need to understand and manage this stress-related syndrome [17]. Suicide is widely acknowledged to be a result of untreated or poorly treated depression [18]. Physician suicide occurs in males and females at equal rates, but in the general population, the suicide incidence rate is four times higher in males. This indicates an elevated frequency of suicide among female physicians [1,19,20]. Medical students' two most-frequent causes of death are accidents, followed by suicide [42]. Of U.S. medical student survey participants, 6.6% reported suicidal ideation, meaning they had thoughts or plans of hurting themselves, in the previous two weeks [21]. In Australia, a study conducted on 50,000 physicians and medical students demonstrated that suicidal ideation occurred twice as frequently in the medical profession than in the general population [43]. Similar results were observed among American surgeons, with 6.3% indicating suicidal ideation in the last 12 months and 1.5 to 3-fold increase in suicidal ideation compared to the general public. Surgeons with burnout had a significantly increased risk of suicidal ideation [3].

2. Burnout and Substance Abuse

Another common consequence of burnout is drug and alcohol abuse or dependence. Suicide and drug abuse are linked, as medication overdose is one of the most common methods of physician suicide [22]. The problem starts early. Medical students surveyed in the United States revealed that two criteria of burnout, emotional exhaustion and depersonalization, were strongly correlated with alcohol dependence [28]. Further, the prevalence of drug abuse among physicians is alarming, with about 10–12% developing substance abuse problems as practicing physicians [23]. This surpasses that of the general population's 9.4% illicit drug usage rate in 2013 [44]. Among physicians with substance abuse, alcohol is the most commonly used substance (50.3%), followed by opioids (35.9%) [24]. Due to ease-of-access to prescription drugs, these are more commonly abused by physicians than by the public [25]. Anesthesiology, emergency medicine, and psychiatry have been found to be particularly vulnerable to substance abuse [26]. Drug abuse may be more prevalent in these specialties because of their easier access to narcotics and greater, more constant workplace stressors [27].

Furthermore, studies indicate that burnout is frequent among radiologists (49%) [5,16], emergency medicine (65%), internal medicine (54%), anesthesiology (50%) and psychiatry (42%) [5]. Primary care specialties, i.e. emergency medicine, internal medicine, and family medicine, displayed the greatest risk for burnout. Pediatrics and pediatric subspecialties have also been identified as at risk. Pediatric subspecialists have been found to have a greater frequency of burnout than general pediatricians (40% vs 35%) [5,29,30]. Studies show an approximate relevance of some degree of burnout in 24–46% of pediatric residents and in 40–60% of practicing pediatric subspecialists [5,31].

3. Burnout in Pediatric Cardiology

There is essentially no published data on physician burnout specific to the pediatric cardiology community, either of cardiologists-in-training or practicing pediatric cardiologists. However, there are many