



Theoretical article

EXHAUSTION AND FATIGUE IN STUDENTS – LITERATURE REVIEW

Konstantinos Pardalis

***Department of Psychology, SWU "Neofit Rilski", Blagoevgrad, Bulgaria.**

Email: pardaliskostas@hotmail.gr

Abstract

The present literature review aims to investigate the so far research results regarding symptoms of exhaustion and fatigue in students. In particular, a conceptual approach to the concepts "Emotional Exhaustion", "Fatigue", "Exhaustion Disorder" and "Burnout" is carried out. The approach is completed by describing the tools for measuring "Exhaustion" and "Burnout" in the general population but also specifically in students. The results revealed that there is considerable research and academic interest on the subject, but research must continue in the specific scientific field, which is an issue that concerns a large part of the student community.

Key words: Exhaustion, Burnout, Fatigue

Introduction

School is an institution where relationships are created between students and between students and teachers. It is a social space, particularly important for students, and specifically the most important after the family. The school environment, on the one hand, contributes to the development of social skills and the acquisition of knowledge, but on the other hand, it can create many negative phenomena, which often concern most students (Slivar, 2001). Researchers and clinicians are becoming increasingly conscious of the importance of serious stress reactions that is academic exhaustion and burnout that results from the ongoing students' struggle to cope with high expectations (Parker & Salmela-Aro, 2011). It is now recognized in the literature that students are a vulnerable group for developing burnout (Campos et al., 2012).

In the present literature review, the two concepts of Emotional Exhaustion and Fatigue are initially approached, while some basic information about the Exhaustion Disorder is also mentioned. Also of interest is the literature review regarding the tools currently available to measure Exhaustion. Then the concept of Burnout and its relationship with Emotional Exhaustion is clarified, while the main tools for measuring Burnout are also presented. Finally, bibliographic evidence is presented for our main topic which is Exhaustion in students and Academic Burnout, and also the main tools available for measuring Exhaustion and Burnout in students.

Concepts and definitions of Emotional Exhaustion and Fatigue

Fatigue is a relatively frequent problem and a natural component of the nature of humanity (Doerr & Nater, 2017). It is a term that may be used to describe a 'sense of exhaustion' (Riley et al., 2010, p.1318), or a feeling of 'tiredness, weakness, and lack of energy' (Schwarz et al., 2003, p. 140).

Fatigue can also be defined as: *“an over whelming sense of exhaustion and decreased energy for physical and mental activity, despite an adequate amount of sleep”* (Nolan & Sullivan, 2013, p.3).

Fatigue is linked to stressful events, chronic illnesses, and the recovery from sickness, injury, or trauma. Because fatigue is a subjective sensation, it is difficult to quantify and comprehend. As a result, individuals frequently misunderstand and misjudge fatigue. The many types of fatigue might vary from individual to individual. Fatigue can be physical, mental, or emotional, or a mix of all these. Note that everyone will suffer from fatigue to varying degrees because everyone's fatigue experience is distinct and unique to them (Nolan & Sullivan, 2013). In particular for students, although fatigue is a natural state during extremely demanding and stressful studies, the pathological degree and detrimental impact of chronic study-related fatigue may be troublesome (Zdun-Ryżewska et al., 2021).

Although the terms fatigue and exhaustion are frequently interchanged, researchers in the medical and psychological field prefer the term fatigue (Doerr & Nater, 2017). Emotional exhaustion has characteristics that are comparable to regular fatigue, but it is closer to chronic fatigue due to its pervasive and long-lasting nature (Qureshi & Sajjad, 2015).

The sense of being overextended and having one's mental and physical energies exhausted is referred to as emotional exhaustion (Opoku et al., 2021). Emotional exhaustion is a long-term state of physical and emotional tiredness caused by excessive work and/or personal expectations, as well as constant stress. It is one of the most extreme types of work-related pressure, where employees experience a broad lack of feeling, care, trust, interest, and energy (Qureshi & Sajjad, 2015).

Emotional exhaustion is one of the first stages of burnout where people feel that their job expectations are being dashed, they feel that the demands of their profession or the demands they have on themselves for their profession have made them depressed, they feel that they have run out of resources to offer to others, or that they are not so responsible or efficient in their work (Grigoropoulos & Kapaltsidou, 2020; Zafrul et al., 2021). So, it is associated to a reduction in emotional resources and an increase in the experience of fatigue in people. Individuals who have experienced emotional exhaustion are unable to operate in a productive and responsible manner toward their coworkers and had previously worked well (Zafrul et al., 2021).

The occurrence of emotional exhaustion is influenced by a variety of variables. The studies have tended to show that situational circumstances, rather than individual differences, are the most important determinants. Moreover, employees' poor physical and mental health are indicators of emotional exhaustion, which acts as a particular feature of working life indicator. As a result, emotional exhaustion has the capacity to evaluate the cumulative impacts of workplace stresses (Qureshi & Sajjad, 2015).

Exhaustion Disorder (ED)

Stress is believed to be the main cause of exhaustion disorder. Exposure to one or several identifiable stress factors for a period of minimum six months could lead to symptoms of emotional exhaustion (Adamsson & Bernhardsson, 2018). So, exhaustion disorder is a serious side effect of chronic stress exposure (Skau et al., 2021). Table 1 presents the diagnostic criteria for exhaustion disorder according to the Swedish National Board of Health and Welfare. Patients with exhaustion disorder report feeling highly fatigued after cognitively taxing tasks and need more recuperation time.

EXHAUSTION AND FATIGUE IN STUDENTS – LITERATURE REVIEW

When the cognitive effort is raised further, they appear to suffer much enhanced fatigue (Skau et al., 2021).

Table 1. Diagnostic criteria for exhaustion disorder (Swedish National Board of Health and Welfare)

o	Criterion
	Physical and mental symptoms of exhaustion during a minimum of two weeks. The symptoms have developed in response to one or more identifiable stressors which have been present for at least six months.
	Markedly lack of mental energy, which is manifested by reduced initiative, reduced endurance, or prolonged recovery time after mental strain.
	At least four of the following symptoms have been present most days during the same two-week period: 1) Concentration difficulties or memory problems 2) Markedly reduced ability to manage demands or to perform under time pressure 3) Emotional instability or irritability 4) Sleep disturbances 5) Marked physical weakness or fatigue 6) Physical symptoms such as pain, chest pain, palpitations, gastrointestinal symptoms, dizziness, or sensitivity to sound
	The symptoms cause clinically significant suffering or reduced ability to function at work, socially, or in other important situations.
	The symptoms are not related to direct physiological effects of a substance (e.g. drug abuse, medication) or somatic disease/injury (e.g. hypothyroidism, diabetes, infectious disease).
	If the criteria for major depressive disorder, dysthymic disorder or generalized anxiety disorder concurrently are fulfilled, exhaustion disorder should be used as a secondary diagnosis.

Source: Adamsson & Bernhardtsson, 2018, p. 173

Exhaustion disorder has multiple basic symptoms in common with other disorders such as chronic fatigue syndrome. However, these two disorders are distinguished by a number of symptoms. The onset of chronic fatigue syndrome is frequently associated with infections and associated symptoms such as sore throat and swollen lymph nodes. This is seldom the case with exhaustion disorder patients who express strong and persistent stress exposure as well as long-lasting fluctuating prodromal physical or mental symptoms, often for several years prior to the onset of exhaustion disorder. The development of exhaustion disorder is frequently sudden and is frequently accompanied with a stressful incident or an uncommon setting (Skau et al., 2021).

Measuring Exhaustion

Literature review reveals that there are several scales that measures Exhaustion. For example, Karolinska Exhaustion Disorder Scale (KEDS) is a nine item self-rating scale which is developed by Besèr et al. (2014), in order to assess the symptoms of stress-induced exhaustion disorder. As shown in Table 2, the nine items of the scale are the following: (1) ability to concentrate, (2) memory, (3) physical stamina, (4) mental stamina, (5) recovery, (6) sleep, (7) sensory impressions, (8) experience of demands, and (9) irritation and anger.

Table 2. Karolinska Exhaustion Disorder Scale (KEDS)

Ability to concentrate
<p>We would like you to assess your ability to keep your thoughts together and concentrate on various activities. Think about how you function in various activities that demand different levels of concentration, e.g. reading a complicated text, reading a newspaper article and watching TV.</p> <p>I do not have any difficulty concentrating, and can read, watch TV and converse normally.</p> <p>I occasionally have difficulty keeping my thoughts together on things that would normally hold my attention.</p> <p>I have often difficulty concentrating.</p> <p>I cannot concentrate on anything at all.</p>
Memory
<p>We ask here that you describe your ability to remember things. Think about whether or not you have had difficulty recalling names, dates, or tasks that you intend to do during a regular day.</p> <p>I remember names, dates, and what I am supposed to do.</p> <p>Sometimes I forget things that are not so important, but if I pull myself together I can usually remember.</p> <p>I often forget appointments or names of people whom I know very well.</p> <p>Every day, I forget important things or what I have promised to do.</p>
Physical stamina
<p>This is a question concerning your physical stamina. Do you feel, for example, more exhausted than usual after the activities of an ordinary day or some form of physical exertion?</p> <p>I feel the way I usually do and perform my daily physical activities or exercise as usual.</p> <p>I feel that physical effort is more exhausting than normal, but still move the way I usually do in this respect.</p> <p>I do not have the energy to exert myself physically. It is OK as long as I move at a normal phase, but I cannot increase my pace without becoming shaky and short of breath.</p> <p>I feel very weak and cannot even move short distances.</p>
Mental stamina
<p>We would like you to reflect here on your mental stamina and to what extent you are more mentally exhausted than usual in various everyday situations.</p> <p>I have just as much energy as usual. I do not have any particular difficulty performing my daily activities.</p> <p>I can manage my everyday activities, but they take more energy and I am exhausted more quickly than usual. I need to take breaks more often than usual.</p> <p>I become inordinately tired when I attempt my daily activities and find social situations exhausting.</p> <p>I do not have the energy to do anything.</p>
Recovery
<p>We ask you to describe here how well and how quickly you recover mentally and physically when you have been exhausted.</p> <p>I do not have to rest during the day.</p> <p>I become tired during the day, but all I have to do is to take a little break in order to recover.</p> <p>I become tired during the day and need to take long breaks in order to feel fit.</p> <p>No matter how much I rest, it feels as if I am unable to recharge my batteries.</p>
Sleep

EXHAUSTION AND FATIGUE IN STUDENTS – LITERATURE REVIEW

<p>We ask you to describe your sleep. Think about how long you have slept and the quality of your sleep during the past two weeks. Your assessment should reflect your actual sleep, regardless of whether or not you have taken sleeping pills.</p> <p>I sleep well and long enough. I usually feel thoroughly rested when I wake up after a night's sleep.</p> <p>Sometimes, I sleep more restlessly than usual, or wake up during the night and have difficulty going back to sleep. Sometimes, I do not feel thoroughly rested when I wake up after a night's sleep.</p> <p>I often sleep more restlessly than usual, or wake up during the night and have difficulty going back to sleep. I often have a feeling of not being thoroughly rested after a night's sleep.</p> <p>I sleep superficially or restlessly every night. I never feel thoroughly rested after a night's sleep.</p>
<p>Hypersensitivity to sensory impressions</p> <p>This is a question about the extent to which one or several of your senses have become more sensitive to impressions, such as sound, light, smell or touch.</p> <p>I do not think that my senses are more sensitive than usual.</p> <p>Sound or light or other sensory impressions are sometimes unpleasant.</p> <p>I often experience that sound, light or other sensory impressions are disturbing or unpleasant.</p> <p>Sound, light or other sensory impressions bother me so much that I withdraw in order to give my senses a chance to rest.</p>
<p>Experience of demands</p> <p>Here we ask you to give expression to the way you react to demands in your daily life. These demands can come from your surroundings or be your own demands on yourself.</p> <p>I do what I am supposed to do or want to do without experiencing it as especially demanding or difficult.</p> <p>Sometimes I experience daily situations that I used to handle without any particular problem as demanding, leading to unease, or causing me to become more easily stressed.</p> <p>I often feel that situations that I previously handled without problem are now demanding and cause a strong feeling of uneasiness or stress.</p> <p>I experience nearly everything as demanding and cannot handle it at all.</p>
<p>Irritation and anger</p> <p>This question regards how easily irritated or angry you become, regardless of whether or not you show it. Think especially about how quick tempered you have been in relationship to the source of your irritation, and how often and intensively you have become angry or irritated.</p> <p>I do not feel that I am especially easily irritated.</p> <p>I am more impatient and easily irritated than usual, but the feeling quickly passes.</p> <p>I become more impatient and easily irritated than usual. Sometimes I lose control in a way that is unusual for me.</p> <p>I am often furious and have to make an enormous effort in order to restrain myself.</p>

Source: Besèr et al., 2014

Glise et al. (2010) based on the diagnostic criteria for exhaustion disorder to develop the Self-Reported Exhaustion Disorder Questionnaire (s-ED), which consists of four questions, as shown in Table 3. According to its creators, s-ED measure has a clear relationship with other well-established measures of mental health, such as depression, anxiety, burnout, and stress, indicating construct validity.

Table 3. Self-Reported Exhaustion Disorder Questionnaire (s-ED)

<p>1. Do you currently feel, and have felt for more than 2 weeks, physically and/or mentally exhausted?</p> <p>Answer: Yes or No</p>
<p>2. Do you consider this exhaustion to be caused by long-term stress exposure (that you have been exposed to great strain or experienced pressure for 6 months or more)?</p> <p>Answer: Yes or No</p>

<p>3. During the last 2 weeks, have you experienced:</p> <p>(a) Concentration or memory problems?</p> <p>(b) Markedly reduced capacity to tolerate demands or to work under time pressure?</p> <p>(c) Emotional instability or irritability?</p> <p>(d) Sleeping problems?</p> <p>(e) Physical weakness or being more easily fatigued?</p> <p>(f) Physical symptoms such as muscular pain, chest pain, palpitations, gastrointestinal problems, vertigo or increased sensitivity to sounds?</p> <p><i>Answers: Yes or No</i></p>
<p>4. Have the complaints above (questions 1–3) markedly decreased your well-being and/or your functional capacity (work ability, family life, leisure activities or other important ways)?</p> <p><i>Answer: Yes, to a great extent</i></p> <p><i>Yes, somewhat</i></p> <p><i>No, not at all</i></p>

Source: Glise et al., 2010

Lund University Checklist For Incipient Exhaustion (LUCIE) was developed by Österberg et al. (2016) to identify early indicators of stress and exhaustion throughout six domains, as shown in Table 4: (a) sleep and recovery, (b) separation of work and leisure time, (c) feeling of community and support at work, (d) balancing job tasks and personal capacities, (e) private life and leisure activities, and (f) health concerns. It is made up of 28 items that describe the actions and feelings linked with the premonitory stages of exhaustion disorder.

Table 4. Lund University Checklist For Incipient Exhaustion (LUCIE)

Sleep and recovery
<p>During the last month, how much have you experienced the following</p> <p>1. trouble falling asleep</p> <p>2. repeatably waking up or disturbed/restless sleeping</p> <p>3. premature (final) awaking and/or not enough sleeping</p> <p><i>Answers: Not at all, Somewhat, Quite a bit, Very much</i></p>
Separation between work and spare time
<p>During the last month, how much have you experienced the following</p> <p>4. work consumes so much of your energy that you don't have the strength to take care of necessary things at home</p> <p>5. problems at work make you irritable at home</p> <p>6. trouble relaxing during your spare time due to constant worries about work</p> <p>7. trouble sleeping due to constant worries about work</p> <p><i>Answers: Not at all, Somewhat, Quite a bit, Very much</i></p>
Sense of community and support in the workplace
<p>During the last month, how much have you experienced the following</p> <p>8. lack of support and/or help from your closest colleagues</p> <p>9. lack of support and/or help from your supervisor</p> <p><i>Answers: Not at all, Somewhat, Quite a bit, Very much</i></p>
Managing work duties and personal capabilities

EXHAUSTION AND FATIGUE IN STUDENTS – LITERATURE REVIEW

During the last month, how much have you experienced the following 10. that you've started to lose control of your work duties 11. that you've started to lose your enthusiasm/joy for the work duties 12. that you've started to feel less effective handling your work duties 13. that you've become less able to make work-related decisions 14. that you've become less patient or energetic when cooperating with your colleagues <i>Answers: Not at all, Somewhat, Quite a bit, Very much</i>
Private life and spare time activities
During the last month, how much have you experienced the following 15. not enough time to socialize with friends and acquaintances 16. less energy or desire to socialize with friends and acquaintances 17. less energy or desire to perform your usual spare time activities <i>Answers: Not at all, Somewhat, Quite a bit, Very much</i>
Health complaints
During the last month, how much have you experienced the following 18. heart palpitations and discomfort (e.g. chest pressure) 19. sensitivity to light and noise 20. impaired short-term memory 21. impaired concentration or confusion 22. dizziness, anxiety or worry 23. severe fatigue/lack of energy even after resting 24. impatience 25. losing your temper (becoming irritated) over small things 26. easily offended (e.g. close to tears) 27. feelings of hopelessness or powerlessness 28. not able to take initiative <i>Answers: Not at all, Somewhat, Quite a bit, Very much</i>

Source: Österberg et al., 2016

Emotional Exhaustion and Burnout

The terms 'emotional exhaustion' and 'burnout' are used incorrectly as synonyms, although there is actually a difference in their conceptual content. As mentioned above, emotional exhaustion is a clearly defined term and a specific clinical diagnosis (Adamsson & Bernhardsson, 2018), so it is more physiologically focused (Österberg et al., 2016). Burnout on the other hand, is unspecific and is found in the literature with many definitions (Adamsson & Bernhardsson, 2018). It's a concept that was developed in an attempt to identify criteria for exhaustion brought on by lengthy periods of job-related stress (Doerr & Nater, 2017). It should be noted though that burnout is, in the end, a complicated, ongoing, and heterogeneous phenomenon (Dyrbye et al., 2009).

Psychoanalyst Herbert Freudenberger was the first who used the term 'burnout' during the 70s when he noticed that numerous of his clinic's personnel, including himself, were suffering from exhaustion. Those who had previously been intensely involved in their work (or had been 'burned' for it) were particularly affected (Doerr & Nater, 2017). In particular, he defined burnout in 1974, as: 'to fail, to wear out, or become exhausted by making excessive demands on energy, strength, or resources' (as cited by Jacobs and Dodd, 2013, p. 291). Nowadays the concept is used to describe both a condition and a procedure (to burn out) (Doerr & Nater, 2017).

Professional burnout includes emotional exhaustion as a main symptom, along with cynicism and reduced professional accomplishment, so it is related to life management difficulty (Besèr et al., 2014). Slivar (2001: 22) defines burnout as: ‘a state of physical, emotional and mental exhaustion that results from long-term involvement with people in situations that are emotionally demanding’. Melamed et al. (1992) describe burnout as prolonged depletion of a person's energy resources caused by persistent stress. According to their definition, burnout has three dimensions: physical fatigue, emotional exhaustion, and cognitive weariness. But as Lundgren – Nilsson et al. (2012) point out, the theoretical foundation for the word burnout differs amongst the existing self-report measures designed to assess the condition.

Burnout has been linked to both physical and mental health problems, according to studies. In terms of psychological aspects, evidence indicated that burnout symptoms are linked to low life satisfaction and poor sleep quality. Burnout and depression have also been found to have substantial correlations (Gerber et al., 2018). Psychosocial job features have been demonstrated to be prospectively related with burnout, and employees scoring high on burnout assessments have been shown to reflect lower work capacity and are at risk for long-term sick leave and early retirement (Glise et al., 2010).

While the foregoing data indicate that burnout symptoms are a public health problem, the majority of the current research is centered on working adults and hence cannot be applied to young people. However, some academics have stated that the idea of burnout is relevant outside of the workplace and also affects student populations (Gerber et al., 2018). Although the term ‘burnout’ is usually used in work environments – and especially for professions that involve extensive contact with people, such as human resources domain – it can also be used in school environments (Slivar 2001; Schaufeli et al., 2002). In general, it can occur as a result of long-term exposure to any emotionally demanding environment (Grossi et al., 2015). Considering that the organization of the activities students participate in, and also the features of the tasks they must complete, are strikingly similar to those of a variety of jobs, students are likely to be exhausted, and they may acquire a negative attitude toward their studies (Reis et al., 2015).

According to Slivar (2001) there are some threatening occurrences that can cause burnout in school environments: (a) constant productiveness demands; (b) reduced opportunities of control over teaching and few opportunities for creativity; (c) lack of incentive and praise for well-done work; (d) lack of suitable interpersonal relations; (e) fear of failure, criticism for lack of success or unpleasant consequences due to great expectations; and (f) clashes of values (between students family and the school or between the youth and the teachers). Early detection of burnout symptoms may be an indicator of potential problems, both in school and work environments, that allows preventive interventions (Campos et al., 2012).

Measuring Burnout

Burnout is also a topic that has concerned researchers about its measurement. The Maslach Burnout Inventory (MBI) which designed by Maslach and Jackson (1981), is the most common instrument that is used to measure burnout (Densten, 2001; Demerouti & Baker, 2008). As aptly stated by Dyrbye et al., (2009, p.440), MBI is: “the gold standard tool for measuring burnout”. It is remarkable that Kristensen et al. (2005, p. 193) pointed out that that the specific instrument: ‘has been applied in more than 90% of all empirical burnout studies in the world’.

EXHAUSTION AND FATIGUE IN STUDENTS – LITERATURE REVIEW

The original instrument is based on a three-dimensional definition which states that: “Burnout is a syndrome of emotional exhaustion, depersonalization and reduced personal accomplishment that can occur among individuals who do ‘people work’ of some kind” (Maslach & Jackson, 1981, p. 1). From the above, we see that this instrument is only applicable to professions that have to do with people. To fill this gap, Schaufeli, Leiter, Maslach and Jackson (1996) developed the Maslach Burnout Inventory – General Survey (MBI-GS), broadening its application beyond the interpersonal domain. In this version, three more burnout dimensions were added: exhaustion, cynicism and professional efficacy.

Some years later, Schaufeli, Martinez, Pinto, Salanova and Bakker (2002) modified MBI-GS for use among students, and called it MBI–Student Survey (MBI-SS). The MBI-SS consists of 15 items that constitute three scales: (a) Exhaustion (5 items), (b) Cynicism (4 items), and (c) Efficacy (6 items), as shown in Table 5. All items are scored on a 7-point rating scale ranging from 0 (never) to 6 (always). High scores on Exhaustion and Cynicism scales and low scores on Efficacy scale are indicative for burnout.

Table 5. MBI–Student Survey (MBI-SS)

Exhaustion
1. I feel emotionally drained by my studies. 2. I feel used up at the end of a day at university. 3. I feel tired when I get up in the morning and I have to face another day at the university. 4. Studying or attending a class is really a strain for me. 5. I feel burned out from my studies.
Cynicism
1. I have become less interested in my studies since my enrollment at the university. 2. I have become less enthusiastic about my studies. 3. I have become more cynical about the potential usefulness of my studies. 4. I doubt the significance of my studies.
Professional Efficacy
1. I can effectively solve the problems that arise in my studies. 2. I believe that I make an effective contribution to the classes that I attend. 3. In my opinion, I am a good student. 4. I feel stimulated when I achieve my study goals. 5. I have learned many interesting things during the course of my studies. 6. During class I feel confident that I am effective in getting things done.

Source: Schaufeli et al., 2002

Burnout Measure (BM) is also a very commonly used instrument to measure burnout (Enzmann et al., 1998). It was developed by Malach-Pines and Aronson (1988) and initially included 21 items. Some years later though, in order to fulfill the demands of academics and practitioners, Malach-Pines (2005) revised its 10-item shorter variant as a simple instrument made of fewer components. The Burnout Measure Short Version (BMS) is presented in Table 6. With a single score, Burnout Measure determines the degree of burnout. Furthermore, according to the BM items' language as well as the authors' theoretical concerns, the BM is not limited to a single professional field (Enzmann et al., 1998).

Table 6. Burnout Measure Short Version (BMS)

When you think about your work overall, how often do you feel the following?

1= never, 2= almost never, 3= rarely, 4= sometimes, 5= often, 6= very often, 7= Always
Tired Disappointed with people Hopeless Trapped Helpless Depressed Physically weak/Sickly Worthless/Like a failure Difficulties sleeping 'I've had it'

Source: Malach-Pines, 2005

Kristensen et al. (2005) developed the Copenhagen Burnout Inventory (CBI), which includes three parts: personal burnout, work burnout, and client burnout. The questionnaire's three components were meant to be used in diverse domains. The items regarding personal burnout were designed in such a way that they could be answered by anyone, so according to Kristensen et al. (2005) it is a truly generic scale. The questions about work burnout imply that the respondent has some form of paid job. Finally, the client-related burnout items include the phrase 'client', but it is referred to any comparable term where applicable, such as 'patient', 'student', 'inmate', and so on. The items of the Copenhagen Burnout Inventory (CBI) are presented in Table 7.

Table 7. Copenhagen Burnout Inventory (CBI)

Personal burnout
How often do you feel tired? How often are you physically exhausted? How often are you emotionally exhausted? How often do you think: 'I can't take it anymore'? How often do you feel worn out? How often do you feel weak and susceptible to illness?
Work-related burnout
Do you feel worn out at the end of the working day? Are you exhausted in the morning at the thought of another day at work? Do you feel that every working hour is tiring for you? Do you have enough energy for family and friends during leisure time? Is your work emotionally exhausting? Does your work frustrate you? Do you feel burnt out because of your work?
Client-related burnout
Do you find it hard to work with clients? Does it drain your energy to work with clients? Do you find it frustrating to work with clients? Do you feel that you give more than you get back when you work with clients? Are you tired of working with clients? Do you sometimes wonder how long you will be able to continue working with clients?

Source: Kristensen et al., 2005

EXHAUSTION AND FATIGUE IN STUDENTS – LITERATURE REVIEW

Oldenburg Burnout Inventory (OLBI) was proposed by Demerouti and Nachreiner (1998), originally in German, and later by Demerouti et al. (2003) in English. It includes 16 items, as shown in Table 8, in order to describe different states of emotional exhaustion and detachment. It is based on the assumption that burnout is a syndrome of two dimensions, occurring regardless of the individual's occupation (Campos et al., 2012). These dimensions are: a) exhaustion, and b) disengagement (from work). Exhaustion here is defined as: “*a consequence of intense physical, affective and cognitive strain*” (Demerouti & Baker, 2008, p. 4), so that the instrument can be applied to both employees who perform physical work and employees whose job is based on processing information.

Table 8. Oldenburg Burnout Inventory (OLBI)

Exhaustion
There are days when I feel tired before I arrive at work. After work, I tend to need more time than in the past in order to relax and feel better. I can tolerate the pressure of my work very well. During my work, I often feel emotionally drained. After working, I have enough energy for my leisure activities. When I work, I usually feel energized. After my work, I usually feel worn out and weary. Usually, I can manage the amount of my work well.
Disengagement
I always find new and interesting aspects in my work. It happens more and more often that I talk about my work in a negative way. Lately, I tend to think less at work and do my job almost mechanically. I find my work to be a positive challenge. Over time, one can become disconnected from this type of work. This is only type of work that I can imagine myself doing. I feel more and more engaged in my work. Sometimes I feel sickened by my work tasks.

Source: Demerouti & Baker, 2008; Campos et al., 2012

Shirom-Melamed Burnout Measure (SMBM) was developed by Shirom and Melamed (2006) who depended their approach on Hobfoll's Conservation of Resources Theory (COR). They believe that burnout is induced by long-term job stress that drains an individual's emotional reserves. Shirom-Melamed Burnout Measure includes 14 items and three subscales: physical fatigue (PF) (6 items), cognitive weariness (CW) (5 items), and emotional exhaustion (EEEx) (3 items), as presented in Table 9.

Table 9. Shirom-Melamed Burnout Measure (SMBM)

How often have you felt this way at work? 1=never or almost never, 2=very infrequently, 3=quite infrequently, 4=sometimes, 5=quite frequently, 6=very frequently, 7=always or almost always
1. I feel tired
2. I have no energy for going to work in the morning
3. I feel physically drained
4. I feel fed up
5. I feel like my “batteries” are “dead”
6. I feel burned out
7. My thinking process is slow
8. I have difficulty concentrating

9. I feel I'm not thinking clearly
10. I feel I'm not focused in my thinking
11. I have difficulty thinking about complex things
12. I feel I am unable to be sensitive to the needs of coworkers and customers
13. I feel I am not capable of investing emotionally in coworkers and customers
14. I feel I am not capable of being sympathetic to co-workers and customers

Source: Shirom & Melamed, 2006

Exhaustion in students and Academic Burnout

Students' psychosocial well-being and the academic performance can be significantly affected by the occurrence of burnout (Campos et al., 2012). Student burnout is a three-dimensional condition characterized by emotions of tiredness owing to the demands of studying, a cynical attitude of retreat and detachment, and lower personal efficacy towards academic obligations, similar to employee burnout (Reis et al., 2015). Academic or school burnout implies that, similar to employment, education forces individuals to engage in a variety of success demands. Burnout develops as a result of students' continuing struggles to cope with these expectations. Theoretically, school burnout may be defined as a persistent stress reaction in students who are initially involved in their studying, caused by a mismatch between students' abilities and their own or others' expectations for their educational success (Parker & Salmela-Aro, 2011).

Silvar (2001) found that the burnout syndrome appears in several different levels of intensity among adolescents attending secondary school. He also found that the adolescents with negative self-image areas are more likely to suffer from burnout and that certain dimensions of self-image influence certain dimensions of burnout. Students with burnout symptoms found to manifest increased anxiety, they come from families with bad interpersonal relations and negative climate, they have a reduced capability to master the external world and their ego apparatus is not strong enough to cope with various pressures arising from both the external and the internal environments. Moreover, Parker & Salmela-Aro (2011) report that to far, empirical research on student burnout has found that it is linked to major behavioral and psychological issues such as depression, absenteeism, and school dropout.

Academic burnout research has progressed beyond seeing burnout as a single construct consequence and has begun to investigate the construct validity of burnout from a multidimensional viewpoint that includes emotional exhaustion, cynicism, and feelings of inadequacy. Of particular interest are the results of the research conducted by Parker & Salmela-Aro (2011) who found that: academic burnout is generally stronger consistent over time; cynicism predicts emotions of inadequacy over time; and emotional exhaustion predicts feelings of inadequacy over time.

Measuring Exhaustion and Burnout in students

In previous section we described the general Maslach Burnout Inventory (MBI) that created by Schaufeli, Leiter, Maslach and Jackson (1996). In order to study burnout from students' perspective, Schaufeli, Martinez, Pinto, Salanova, and Bakker (2002) developed the Maslach Burnout Inventory-Student Survey (MBI-SS). This measure includes 15 items and three subscales: exhaustion (5 items), cynicism (4 items), and efficacy (6 items), as shown in Table 10.

Table 10. Maslach Burnout Inventory-Student Survey (MBI-SS)

EXHAUSTION AND FATIGUE IN STUDENTS – LITERATURE REVIEW

Exhaustion
<ol style="list-style-type: none"> 1. I feel emotionally drained by my studies. 2. I feel used up at the end of a day at university. 3. I feel tired when I get up in the morning and I have to face another day at the university. 4. Studying or attending a class is really a strain for me. 5. I feel burned out from my studies.
Cynicism
<ol style="list-style-type: none"> 1. I have become less interested in my studies since my enrollment at the university. 2. I have become less enthusiastic about my studies. 3. I have become more cynical about the potential usefulness of my studies. 4. I doubt the significance of my studies.
Efficacy
<ol style="list-style-type: none"> 1. I can effectively solve the problems that arise in my studies. 2. I believe that I make an effective contribution to the classes that I attend. 3. In my opinion, I am a good student. 4. I feel stimulated when I achieve my study goals. 5. I have learned many interesting things during the course of my studies. 6. During class I feel confident that I am effective in getting things done.

Source: Schaufeli et al., 2002

As mentioned above, some researchers have criticized MBI (Demerouti et al., 2001; Demerouti et al., 2003), arguing that exhaustion and cynicism dimensions have a positive formulation, while the professional efficacy dimension has negative formulation. This affects its sensitivity and discriminatory power. Researchers also claim that MBI does not consider the physical and cognitive elements of exhaustion, but only the emotional aspects. The same is true also in students' version of the instrument.

The School Burnout Inventory (SBI) was created by Salmela-Aro and Näätänen (2005) to measure burnout among students. Burnout was defined as a three-dimensional construct with four subdomains: exhaustion at school (four items), cynicism about the meaning of school (three items), and a sense of inadequacy at school (three items) (Gerber et al., 2018). The final version of School Burnout Inventory was introduced some years later by Salmela-Aro et al. (2009), as shown in Table 11. The validity and reliability of the SBI were supported by research evidence, and researchers were able to learn more about the risk factors, time courses, and health implications related with school burnout among teenagers using this instrument (Gerber et al., 2018).

Table 11. School Burnout Inventory (SBI)

Please choose the alternative that best describes your situation (estimation from previous month)
--

<ol style="list-style-type: none">1. I feel overwhelmed by my schoolwork (EXH1)2. I feel a lack of motivation in my schoolwork and often think of giving up (CYN1)3. I often have feelings of inadequacy in my schoolwork (INAD1)4. I often sleep badly because of matters related to my schoolwork. (EXH2)5. I feel that I am losing interest in my schoolwork (CYN2)6. I'm continually wondering whether my schoolwork has any meaning (CYN3)7. I brood over matters related to my schoolwork a lot during my free time (EXH3)8. I used to have higher expectations of my schoolwork than I do now (INAD2)9. The pressure of my schoolwork causes me problems in my close relationships with others (EXH4) <p><i>Note.</i> EXH = exhaustion at schoolwork; CYN = cynicism toward the meaning of school; INAD = sense of inadequacy at school.</p>

Source: Salmela-Aro et al., 2009

Conclusions

This article is a brief literature review on the subject of Exhaustion and Fatigue in students. First, a conceptual approach was made to the concepts of Emotional Exhaustion, Fatigue and Exhaustion Disorder, where a strong bibliographic presence was found, especially in the last twenty years (Schwarz et al., 2003; Riley et al., 2010; Glise et al., 2010; Nolan & Sullivan, 2013; Besèr et al., 2014; Qureshi & Sajjad, 2015; Österberg et al., 2016; Doerr & Nater, 2017; Adamsson & Bernhardsson, 2018; Grigoropoulos & Kapaltsidou, 2020; Zdun-Ryżewska et al., 2021; Opoku et al., 2021; Zafrul et al., 2021; Skau et al., 2021). Therefore, these concepts have been described and clarified to a great extent in the literature, which is an important parameter for the topic we are studying here.

The situation is similar for the conceptual approach to the topics of 'emotional exhaustion' and 'burnout', where a great bibliographic interest was found (Maslach & Jackson, 1981; Malach-Pines & Aronson, 1988; Melamed et al., 1992; Schaufeli et al., 1996; Enzmann et al., 1998; Demerouti & Nachreiner, 1998; Enzmann et al., 1998; Slivar, 2001; Densten, 2001; Schaufeli et al., 2002; Demerouti et al., 2003; Kristensen et al., 2005; Malach-Pines, 2005; Shirom & Melamed, 2006; Demerouti & Baker, 2008; Dyrbye et al., 2009; Glise et al., 2010; Lundgren – Nilsson et al., 2012; Campos et al., 2012; Jacobs and Dodd, 2013; Besèr et al., 2014; Grossi et al., 2015; Reis et al., 2015; Österberg et al., 2016; Doerr & Nater, 2017; Gerber et al., 2018; Adamsson & Bernhardsson, 2018).

Specifically for students, the bibliography is particularly interesting with useful approaches (Silvar, 2001; Schaufeli et al., 2002; Salmela-Aro & Näätänen, 2005; Salmela-Aro et al., 2009; Parker & Salmela-Aro, 2011; Campos et al., 2012; Reis et al., 2015; Gerber et al., 2018), however, it is an issue that concerns a large part of the educational and scientific community, but mainly the students themselves, so the research should continue.

Bibliography

Adamsson, A., & Bernhardsson, S. (2018). Symptoms that may be stress-related and lead to exhaustion disorder: a retrospective medical chart review in Swedish primary care. *BMC Family Practice*, 19(1), 1-9.

Aguilera-Hermida, A. P. (2020). College students' use and acceptance of emergency online learning due to COVID-19. *International Journal of Educational Research Open*, 1, 100011.

EXHAUSTION AND FATIGUE IN STUDENTS – LITERATURE REVIEW

Besèr, A., Sorjonen, K., Wahlberg, K., Peterson, U., Nygren, Å., & Åsberg, M. (2014). Construction and evaluation of a self rating scale for stress Karolinska Exhaustion Disorder Scale. *Scandinavian Journal of Psychology*, 55(1), 72-82.

- induced Exhaustion

Campos, J. A. D. B., Carlotto, M. S., & Marôco, J. (2012). Oldenburg Burnout Inventory-student version: cultural adaptation and validation into Portuguese. *Psicologia: Reflexão e Crítica*, 25(4), 709-718.

Demerouti, E., & Bakker, A. B. (2008). The Oldenburg Burnout Inventory: A good alternative to measure burnout and engagement. In *Handbook of stress and burnout in health care*, 65-78.

Demerouti, E., & Nachreiner, F. (1998). Zur Spezifität von Burnout für Dienstleistungsberufe: Fakt oder Artefakt [The specificity of burnout for human services: Fact or artefact]. *Zeitschrift für Arbeitswissenschaft*, 52, 82-89.

Demerouti, E., Bakker, A. B., Vardakou, I., & Kantas, A. (2003). The convergent validity of two burnout instruments: A multitrait-multimethod analysis. *European Journal of Psychological Assessment*, 19(1), 12.

Densten, I. L. (2001). Re-thinking burnout. *Journal of Organizational Behavior*, 22(8), 833–847.

Doerr, J. M., & Nater, U. M. (2017). Exhaustion syndromes: Concepts and definitions. In *Burnout, fatigue, exhaustion* (pp. 77-104). Palgrave Macmillan, Cham.

Dyrbye, L. N., West, C. P., & Shanafelt, T. D. (2009). Defining burnout as a dichotomous variable. *Journal of General Internal Medicine*, 24(3), 440-440.

Enzmann, D., Schaufeli, W., Janssen, P. & Rozeman, A. (1998). Dimensionality and validity of the Burnout Measure. *Journal of Occupational and Organizational Psychology*, 71, 331–351.

García-González, J., Ruqiong, W., Alarcon-Rodriguez, R., Requena-Mullor, M., Ding, C., & Ventura-Miranda, M. I. (2021). Analysis of Anxiety Levels of Nursing Students Because of e-Learning during the COVID-19 Pandemic. In *Healthcare* (Vol. 9, No. 3, p. 252). Multidisciplinary Digital Publishing Institute.

Gerber, M., Colledge, F., Mücke, M., Schilling, R., Brand, S., & Ludyga, S. (2018). Psychometric properties of the Shirom-Melamed Burnout Measure (SMBM) among adolescents: results from three cross-sectional studies. *BMC Psychiatry*, 18(1), 1-13.

Glise, K., Hadzibajramovic, E., Jonsdottir, I. H., & Ahlborg, G. (2010). Self-reported exhaustion: a possible indicator of reduced work ability and increased risk of sickness absence among human service workers. *International Archives of Occupational and Environmental Health*, 83(5), 511-520.

Grigoropoulos H. N., & Kapaltsidou D. (2020). Occupational burnout in employees of kindergartens in the prefecture of Thessaloniki. The predictive role of demographic characteristics. *Exploring the Child's World*, 16, 58–71 (in Greek).

Grossi, G., Perski, A., Osika, W., & Savic, I. (2015). Stress clinical manifestation of burnout? A review of assessment methods, sleep impairments, cognitive disturbances, and neurobiological changes in clinical burnout. *Scandinavian Journal of Psychology*, 56(6), 626-636.

– related exhaustion

Gunasekaran, A., McNeil, R. D., & Shaul, D. (2002). E-learning: research and applications. *Industrial and Commercial Training*, 34(2), 44-53.

- learning: research

Jacobs, S. R., & Dodd, D. (2003). Student burnout as a function of personality, social support, and workload. *Journal of college student development*, 44(3), 291-303.

Kristensen, T. S., Borritz, M., Villadsen, E., & Christensen, K. B. (2005). The Copenhagen Burnout Inventory: A new tool for the assessment of burnout. *Work & Stress*, 19(3), 192-207.

Lundgren-Nilsson, Å., Jonsdottir, I. H., Pallant, J., & Ahlborg, G. (2012). Internal construct validity of the Shirom-Melamed Burnout questionnaire (SMBQ). *BMC Public Health*, 12(1), 1-8.

Malach-Pines, A. (2005). The burnout measure, short version. *International Journal of Stress Management*, 12(1), 78.

Malach-Pines, A. M., & Aronson, E. (1988). *Career burnout: Causes and cures*. New York: Free Press

Maslach, C. & Jackson, S. (1981). The measurement of experienced burnout. *Journal of Occupational Behaviour*, 2, 99–113.

Melamed, S., Kushnir, T. & Shirom, A. (1992). Burnout and risk factors for cardiovascular diseases. *Behavioral Medicine*, 18, 53–60.

Nolan, C., & Sullivan, O. (2013). *Managing Fatigue in College*. Unilink Service, Trinity College Disability Service.

Opoku, M. A., Yoon, H., Kang, S. W., & You, M. (2021). How to Mitigate the Negative Effect of Emotional Exhaustion among Healthcare Workers: The Role of Safety Climate and Compensation. *International Journal of Environmental Research and Public Health*, 18(12), 6641.

Österberg, K., Persson, R., Viborg, N., Jönsson, P., & Tenenbaum, A. (2016). The Lund University Checklist for Incipient Exhaustion: a prospective validation of the onset of sustained stress and exhaustion warnings. *BMC Public Health*, 16(1), 1-13.

Parker, P. D., & Salmela-Aro, K. (2011). Developmental processes in school burnout: A comparison of major developmental models. *Learning and Individual Differences*, 21(2), 244-248.

Qureshi, M. O., & Sajjad, S. R. (2015). Emotional exhaustion and its correlation with job performance and job satisfaction in the Kingdom of Saudi Arabia. *Mediterranean Journal of Social Sciences*, 6(3 S1), 51-51.

Reis, D., Xanthopoulou, D., & Tsaousis, I. (2015). Measuring job and academic burnout with the Oldenburg Burnout Inventory (OLBI): Factorial invariance across samples and countries. *Burnout Research*, 2(1), 8-18.

Riley, W. T., Rothrock, N., Bruce, B., Christodolou, C., Cook, K., Hahn, E. A., & Cella, D. (2010). Patient-reported outcomes measurement information system (PROMIS) domain names and definitions revisions: further evaluation of content validity in IRT-derived item banks. *Quality of life research*, 19(9), 1311-1321.

Salmela-Aro K, Näätänen P. (2005). *BBi-10. Nuorten kouluuupumusmenetelmä*. Helsinki: Edita.

Salmela-Aro, K., Kiuru, N., Leskinen, E., & Nurmi, J. E. (2009). School burnout inventory (SBI) reliability and validity. *European Journal of Psychological Assessment*, 25(1), 48-57

Schaufeli, W. B., Martinez, I. M., Pinto, A. M., Salanova, M., & Bakker, A. B. (2002). Burnout and engagement in university students: A cross-national study. *Journal of cross-cultural psychology*, 33(5), 464-481.

Schaufeli, W.B., Leiter, M.P., Maslach, C., & Jackson, S.E. (1996). The Maslach Burnout Inventory-General Survey. In C. Maslach, S.E. Jackson, & M.P. Leiter (Eds.), *Maslach Burnout Inventory*. Palo Alto, CA: Consulting Psychologists Press.

EXHAUSTION AND FATIGUE IN STUDENTS – LITERATURE REVIEW

Schwarz, R., Krauss, O., & Hinz, A. (2003). Fatigue in the general population. *Oncology Research and Treatment*, 26(2), 140-144.

Shirom, A., & Melamed, S. (2006). A comparison of the construct validity of two burnout measures in two groups of professionals. *International journal of stress management*, 13(2), 176.

Slivar, B. (2001). The syndrome of burnout, self-image, and anxiety with grammar school students. *Horizons of Psychology*, 10(2), 21-32.

Zdun-Ryżewska, A., Nadrowska, N., Basiński, K., Walkiewicz, M., & Błazek, M. (2021). Who is a tired student? Fatigue and its predictors from a gender perspective. *Journal of University Teaching & Learning Practice*, 18(6), 139-154.