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Lithuanian II and III-year medical students' eating behaviour and related factors: stress and parental nurturance

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Summary

Background: Medical students are known to experience higher stress levels, primarily due to academic pressures, financial concerns, and societal expectations. These stressors often lead to maladaptive coping mechanisms, such as emotional and stress eating. Additionally, literature indicates parental nurturance plays a role in shaping stress response and that higher parental nurturance is linked with lower levels of stress and healthy eating behaviour. While prior studies have explored the factors individually, this study specifically aims to explore how perceived stress and parental nurturance are associated with II and III – year Lithuanian medical students' eating behaviour.

Methods: A cross-sectional study was conducted with medical students from Lithuanian University of Health Sciences (LSMU) and Vilnius University (VU). Following self-report instruments were used to collect the data: Medical Student Stressor Questionnaire (subscales: academic related stressors, interpersonal and intrapersonal related stressors, teaching and learning related stressors, social related stressors, drive and desire related stressors, group related stressors) (Yousoff et al., 2012), Salzburg Emotional Eating Scale (subscales: happiness, sadness, anxiety, anger) (Meule et al., 2018), Salzburg Stress Eating Scale (Meule et al., 2018), Parental Nurturance Scale (Buri, 1989). Convenience sampling method was used. Sample included 231 students, 77.9% were female, 20.8% male, and 1.3% identified as other, ages ranged from 18 to 36 years.

Results: Results of this study show that females reported higher levels of perceived stress than males ($p<0.05$). Overall, medical students report highest levels of stress in academic and social categories. Data from participants indicates parental nurturance was not associated with levels of perceived stress. Students reported consuming less food than usual when experiencing negative emotions and/or stress (more than 50% of participants). Results suggest a positive relationship between perceived stress and emotional (anxiety) eating with higher perceived stress significantly increasing the odds of eating more food when feeling anxious (OR=2.02, p=0.042). Another positive relationship was found between perceived stress and emotional (anger) eating – higher perceived stress scores significantly increase the odds of eating more food when angry (OR=3.15, p=0.026).

Conclusion: This study found a positive association between higher levels of perceived stress and increased emotional eating behaviour. Additionally, medical students indicated no significant association with stress levels and parental nurturance as well as their eating behaviour and parental nurturance.

Keywords: Eating behaviour, stress, students, parental nurturance.

Santrauka

Dubosaitė, U. (2024). II ir III kurso Lietuvos medicinos studentų valgymo įpročiai, patiriamas stresas ir tėvų įsitraukimas. Vadovė: doc. dr. Aušra Griciūtė. Lietuvos sveikatos mokslų universitetas, Medicinos akademija, Visuomenės sveikatos fakultetas, Sveikatos psichologijos katedra: Kaunas. – 63p.

***Įvadas*:** Tyrimų duomenys patvirtina, kad medicinos studentai patiria aukštesnį streso lygį, nei bendraamžiai. Tam įtakos turi įvairūs veiksniai: akademinis spaudimas, finansinės problemos ir socialiniai lūkesčiai. Studentai dažnai renkasi netinkamus streso įveikos mechanizmus, tokius kaip emocinis ir stresinis valgymas. Be to, formuojant atsaką į stresą, svarbų vaidmenį atlieka tėvų įsitraukimas į vaikus palaikantį bendravimą. Pagal mokslinių tyrimų duomenis nustatyta, kad didesnis tėvų įsitraukimas yra susijęs su mažesniu jų vaikų streso lygiu ir geresniais mitybos įpročiais. Šiuo tyrimu siekiama kompleksiškai išsiaiškinti, kaip patiriamas stresas ir tėvų įsitraukimas yra susiję su II ir III kurso Lietuvos medicinos studentų emocinio ir stresinio valgymo elgesiu.

Metodai: Atliktas skerspjūvio tyrimas, kuriame dalyvavo medicinos specialybės II ir III kurso studentai iš Lietuvos sveikatos mokslų universiteto (LSMU) ir Vilniaus universiteto (VU). Tyrimui buvo naudojamos savižinos klausimynai: Medicinos studentų stresorių klausimynas (Medical Student Stressor Questionnaire) (subskalės: su akademiniu stresu susiję stresoriai, tarpasmeniniai ir asmenybės vidiniai stresoriai, su mokymu ir mokymusi susiję stresoriai, socialiniai stresoriai, potraukiais ir troškimais susiję stresoriai, su grupinėmis veiklomis susiję stresoriai) (Yousoff et al., 2012), Zalcburgo emocinio valgymo skalė (Salzburg Emotional Eating Scale) (subskalės: laimė, liūdesys, nerimas, pyktis) (Meule et al., 2018), Zalcburgo stresinio valgymo skalė (Salzburg Stress Eating Scale) (Meule et al., 2018), Tėvų įsitraukimo skalė (Parental Nurturance Scale) (Buri, 1989). Imtį sudarė 231 studentai, 77,9% - moterys, 20,8% - vyrai, 1,2% - kitų lyčių atstovai, amžius svyravo nuo 18 iki 36 metų.

Rezultatai: Šio tyrimo rezultatai rodo, kad moterys patyrė didesnį streso lygį nei vyrai ($p<0,05$). Medicinos studentai didžiausią streso lygį išgyvena akademinių ir socialinių stresorių kategorijose. Pagal tiriamųjų pateiktus duomenis, nustatyta, kad tėvų įsitraukimas nebuvo susijęs su studentų jaučiamo streso lygiu. Studentų įvertinimai parodė, kad jų suvartojamas maisto kiekis yra mažesnis, kai patiria neigiamas emocijas ir (arba) stresą (daugiau nei 50 proc. dalyvių). Rezultatai patvirtino teigiamą ryšį tarp patiriamo streso (tarpasmeninių ir asmenybės vidinių stresorių subskalių) ir emocinio valgymo (nerimo subskalės) (OR =2,02, p=0,042), o tai žymiai padidina tikimybę suvalgyti daugiau maisto, kai jaučiamas nerimas. Kitas teigiamas ryšys buvo nustatytas tarp patiriamo streso (socialinių stresorių subskalės) ir emocinio valgymo (pykčio subskalės) (OR=3,15, p=0,026).

Išvada: Šis tyrimas atskleidė, teigiamas sąsajas tarp medicinos studentų suvokiamo streso lygio ir jų emocinio valgymo elgesio. Be to, sąsajos tarp medicinos studentų patiriamo streso ir tėvų įsitraukimo ar jų valgymo elgesio ir tėvų įsitraukimo nebuvo statistiškai reikšmingos.

Raktiniai žodžiai: Valgymo elgesys, stresas, studentai, tėvų įsitraukimas.

Key Concepts

Parental nurturance (lt. tėvų įsitraukimas) refers to efforts of parents to encourage individuality and self-regulation of a child. Parents do so by offering emotional support and involvement in their child's life (Sebire et al., 2016).

Emotional eating (lt. emocinis valgymas) – increased or decreased intake of food in response to emotions (Meule, Reichenberger, & Blechert, 2018).

Stress eating (lt. stresinis valgymas) – consuming more or less food than usual as means of coping with stress (Meule, Reichenberger, & Blechert, 2018).

Perceived stress (lt. patiriamas stresas) – individual's perception of external expectations and their own ability to cope with them (Yusoff & Esa, 2012).

Academic related stressors (lt. su mokslu susiję stresoriai) - ‘‘any scholastic, university, college, educational or student events that cause stress on students‘‘ (Yusoff & Esa, 2012, p.13).

Interpersonal & Intrapersonal related stressors (lt. tarpasmeniniai ir asmenybės vidiniai stresoriai) - ’’any form of relationships between and within individuals that cause stress’’ (Yusoff & Esa, 2012, p.14).

Teaching & Learning related stressors (lt. su mokymu ir mokymuosi susiję stresoriai) - ’’any events related to teaching or learning that causes stress’’ (Yusoff & Esa, 2012, p.14).

Social related stressors (lt. socialiniai stresoriai) – ’’any form of community and societal relationships that cause stress’’ (Yusoff & Esa, 2012, p.15).

Drive & Desire related stressors (lt. motyvacijos ir troškimų stresoriai) – ’’any form of internal or external forces that influence one's attitude, emotion, thought and behaviour which subsequently cause stress’’ (Yusoff & Esa, 2012, p.15).

Group Activities related stressors (lt. su grupinėmis veiklomis susiję stresoriai) – ’’any group events and interactions that cause stress’’ (Yusoff & Esa, 2012, p.16).

Abbreviations

- **MSSQ** – Medical Student Stressor Questionnaire
- **SSES** – Salzburg Stress Eating Scale
- **SEES** – Salzburg Emotional Eating Scale
- **PNS** – Parental Nurturance Scale
- **LDS -** Least Significant Difference
- **BMI** – Body Mass Index

1. Introduction

1.1. Background

Life in the present world is demanding and fast-paced, causing many to lack time or resources to pay closer attention to their well-being. Students, medical students in particular, are held to high standards and expectations from their teachers, family, peers. These demands vary, ranging from academic to psychological and interpersonal areas, and can cause high levels of stress (Barikani, 2007). A multitude of coping mechanisms are adopted by the students in an attempt to manage their stress, some, such as emotional eating and stress eating, affecting their eating patterns. The addition of stress negatively impacts eating patterns in these students and often leads to over/under eating (Shah, et al., 2024). In a population with poor eating habits due to timely and monetary restraints, the impact is reverberating. students tend to exhibit poor eating habits due to time and financial restrictions. While these strategies can be affective short-term, they may give rise to adverse health effects when utilised longitudinally, therefore, it is important to understand the relationship between perceived stress and eating behaviour (Adriaanse, et al., 2009).

While stress plays a big role when it comes to eating behaviour it is not the only factor that may influence it. Since university students are emerging young adults, they often lean on their parents for support and nurturance as they transition into being completely independent, highlighting the importance and impact of their parents in day-to-day life. Parental nurturance and support (or lack there of) can significantly affect a child's eating behaviour (El-Behadli, et al., 2015). Students in particular rely on their parents during their first years of further study as they are yet to settle into adulthood or because they require additional emotional or financial support. Wavering levels of parental nurturance has a substantial impact a young adult's ability to manage and succeed through day-to-day life. Having more or less parental support can be a crucial part in how students cope with various situations. Lower levels of parental support are linked to higher levels of emotional and stress eating as coping mechanisms (El-Behadli, et al., 2015). The study by Kolak, et al. (2018) further discusses how students may use food to soothe themselves and manage difficult situations when lacking parental nurturance. Moreover, literature suggests that young adults who experience low levels of parental nurture state experiencing higher levels of stress (Donnelly, et al., 2013).

The aforementioned evidence suggests that perceived stress, parental nurturance, emotional and stress eating behaviour can be closely associated with each other. Previous studies have extensively explored these variables individually by focusing on their relationship. The literature consistently highlights that medical students in particular are vulnerable to high levels of perceived stress and unhealthy eating habits. Given this, it is important to explore whether Lithuanian II and III-year medical student follow similar behavioural patterns that were observed in other countries

such as Brazil, United States of America, Saudi Arabia, India, Thailand, Malaysia, United Kingdom in order to understand the potential risk factors and make appropriate recommendations.

1.2. Research Object and Problem

The objective of this study is to investigate perceived stress and parental nurturance's associations to emotional and stress eating behaviour in II and III-year Lithuanian medical student sample. Specifically, this study aims to explore if different levels of perceived stress and parental nurturance can predict medical student's eating behaviour when feeling stressed, happy, sad, angry, or anxious.

Altered eating behaviour in response to stress or parental nurturance is a highly repercussive issue in the medical student population, since it is vulnerable to high levels of stress (Donnelly, et al., 2013). Thus, eating behaviour resulting in increased or decreased food consumption for prolonged periods of time can lead to various health related issues (Adriaanse, et al., 2009). Furthermore, levels of parental nurturance may also lead to increased or decreased food consumption (El-Behadli, et al., 2015).

By analysing these factors together, this study aims to understand if II and III-year Lithuanian medical students exhibit similar patterns of eating behaviour that may be influenced by perceived stress and parental nurturance.

1.3. Relevance

As a population, students are not known to exhibit good, healthy eating habits. Factors such as time, money and culinary inexperience contribute heavily to this (Yılmaz, et al., 2014). These habits often are exacerbated by factors such as stress and lack of parental nurturance. Since neither of these factors are avoidable it is important to understand the relationship students have with eating behaviours. Furthermore, it is especially crucial to investigate this relationship in the medical student sample, as they report experiencing the highest amounts of stress when compared to peers of the same age (Sherina, et al., 2004). As this study focuses on young adults, parents also have a big role. Having higher parental nurturance and support is related to having good eating habits and not choosing food as a coping mechanism (El-Behadli, et al., 2015). Most research is focused on how stress in general relates to eating habits, or how parental nurturance affects eating behaviour of young children. However, the current study offers an in-depth examination of the relationship among all of these factors together in a young adult sample.

1.4. Novelty

The existing literature mostly focuses on how parental nurturance influences eating behaviour of young children (Mitchell, et al., 2013) and as mentioned earlier, very few studies conducted with

a young adult sample. Moreover, even though there is an abundance of literature on perceived stress and emotional eating (Ling, et al., 2021, Carpio-Arias, et at., 2022, Okumus, et al., 2020), very few of the studies include parental nurturance as a factor for adults. The novelty of this study is in its holistic approach to investigating the relationship between parental nurturance, perceived stress, and eating behaviour in II and III-year Lithuanian medical students by combining all factors into one model and make recommendations on the observed findings to avoid disordered eating.

1.5. Literature Review

1.5.1. Medical Students' Health and Related Eating Behaviours

1.5.1.1. Medical Students' Population and its Characteristics

The Medical students population is often overlooked when it comes to health and wellbeing. Ironically, the students provide health advice to their patients and fail to utilise it themselves. Pagnin et al. (2015) found that medical students have poorer psychological well-being and social relationships when compared to non-medical students of the same age. This leads not only to reduced quality of life but also may impair their performance when caring for patients. Yilmaz et al. (2014) revealed that around 70% of medical students do not care about excess weight, do not avoid foods with high fat and sugar content, and are not aware of how many calories they consume (16.7% of them were obese). Whilst health related issues are important, they are not the only factors that influence their overall well-being. In their study Soh et al. (2012) identified financial problems as the most prevalent. A total of 49% of preclinical medical students stated that they considered dropping out of the course due to monetary issues.

A study on Brazilian female medical students by Bosi et al. (2016) found further risks of eating disorders in this population. Although 78.7% of that sample reported their BMI to be within the normal range, they indicated wanting to lose weight. Bosi et al. (2016) argues that these findings put medical student population at risk of developing eating disorders. Furthermore, the medical education does not protect students from developing unhealthy eating behaviours, thus it is crucial to conduct further investigations.

Alzahrani et al. (2020) looked into how living conditions, psychological and social factors can affect eating behaviours of medical students in Saudi Arabia. In a sample of 378 undergraduate medical students 10.1% identified loneliness as the main factor for eating, 15.9% felt often completely out of control when it came to food, and nearly half of the sample indicated sometimes feeling the same way. Two thirds of the population stated that they sometimes or often ate until their stomach hurt indicating high prevalence of overeating. Negative emotions had the opposite effect on the Saudi Arabian sample – nearly half (43.1%) reported never eating when feeling nervous or upset. Whereas

boredom and happiness elicited a "sometimes" response (51.1% and 56.6% respectively). Interestingly, 88.9% of the population reported living with family and their healthy eating habits score was significantly higher than of students who reported living alone. Based on these results Alzahrani et al. (2020) raises an argument that living with family is a protective factor when it comes to poor eating habits of Saudi Arabian medical students. On the other hand, Alzahrani et al. (2020) deliberates that demanding and stressful university lives might contribute to negative emotions which in turn can open the door for bad eating habits or eating disorders such as overeating.

In the United States medical students experience higher levels of emotional exhaustion, burnout, depersonalization, depression, and fatigue when compared to the general population. Out of 4402 medical students 58.2% screened positive for depression, 57.7% reported high fatigue, 9.4% suicidal ideation in the last 12 months, 44.6% high level of emotional exhaustion population (Dyrbye, et al., 2014). Such emotional strain on students can have detrimental effects not only on their overall health, but also on their quality of life. Dyrbye, et al. (2014) published that the United States medical student population reported having slightly better overall quality of life when compared to college students of the same age in the general population. However, in the same study, medical students reported having worse physical and emotional quality of life in comparison to the general population. Moreover, such emotional states and dissatisfaction with one's quality of life can lead to poor health.

A 2014 study by Brazeau, et al., aimed to investigate and compare the distress experienced by medical students and general population of the same age. In contrast to the aforementioned literature, Brazeau, et al. (2014) found matriculating medical students scored lower for burnout and depression symptoms, and higher for quality of life than general population. This indicates that first year medical students begin their path to become a physician with an overall better mental health when compared to medical students who are further along in their studies. Brazeau, et al. (2014) poses a theory that based on their findings mental health state of United States medical students is not influenced by nature, but rather by nurture. "…high rates of distress reported in medical students and residents, support concerns that the training process and environment contribute to the deterioration of mental health in developing physicians" (Brazeau, et al., 2014, p.1519).

As examined in the studies discussed above, one may conclude it is crucial to explore the daily issues faced by the medical student population, since it faces many mental and physical risks such as suicidal ideation, burn out, emotional exhaustion, high fatigue, depersonalization, depression, low quality of life, poor eating habits, at higher risk of developing eating disorders.

Furthermore, these risks faced by the population continue to increase as they study further into their course. In order to prepare a generation of well-rounded physicians who can provide the best care for their patients as well as look after themselves, errors in the teaching and learning processes must be identified and addressed.

1.5.1.2. Medical Students' Stress Experience

''Stress is an external constraint which upsets an individual both mentally and physically'' (Salam, et al., 2013, p.649). Medical students in particular, experience higher levels of stress when compared to students' experiences from other fields. Studies with Malaysian medical students indicate that perceived stress levels were as high as 56% (Salam, et al., 2013). Furthermore, 57% Medical students in the United States of America reported experiencing psychological stress (Sherina, et al., 2004). Experiencing high levels of stress for a prolonged period of time may lead to severe depression and anxiety (Sherina, et al., 2004). The paper further investigated how perceived psychological stress of Malaysian medical students is associated with symptoms of depression and anxiety. From a sample of 396 students 41.9% reported experiencing high levels of psychological stress and it was significantly associated with depression.

Saipanish (2003) conducted a study with 686 Thai medical students to examine levels and main causes of perceived stress. Two thirds of the participants reported experiencing some levels of stress, however, the highest levels of stress were reported by the third year Thai medical students. The most prevalent causes of stress were academic and familial issues. The suggested reason for high stress levels among third year medical students was the frequency of examinations, however, this may vary from university to university. For instance, almost half of the 155 medical students from Qazvin University of Medical Sciences and Health Services reported experiencing intermediate or higher levels of stress. The main causes for such levels of stress identified by students were initial adaptation (84.5%), exam anxiety (41.3%), and economical problems (32.4%) (Barikani, 2007).

Another study by Supe (1998) focused on stress experienced and factors related to it in a sample of Indian medical students. It was found that out of 238 participants 175 (73%) reported experiencing stress. Furthermore, it was also found that second and third year medical students perceive stress significantly more than first years ($p<0.05$). Supe (1998) also found medical student's perceived stress to be positively associated with high academic performance, social and physical factors. These results indicate second and third year medical students to be likelier to experience a broader variety of stressors in comparison to first year students who seem to be overwhelmed by the adaptation process itself.

Firth (1986) found that both male and female medical students in the United Kingdom experience high levels of distress in comparison to the general population. Only 24% of medical students who participated in the study reported have no stress symptoms, in comparison, 68% of the participants from the general population reported being stress free, and the most stress inducing aspect reported was relationship with consultants – 34%. The stress experience of medical students was so high that it put them at risk of psychiatric illness. The literature suggests that the medical students

experience consists of high levels of stress caused by a variety of factors, such as financial issues, shortage of time, constant evaluation and immense academic burden.

The literature on medical student's stress experience is vastly abundant and consistently indicates that medical students report being under more stress than general population of the same age. As discussed earlier, being in such an environment for years can lead to health related problems (Salam, et al., 2013, Sherina, et al., 2004, Saipanish, 2003, Barikani, 2007, Supe, 1998, Firth, 1986). Lack of time for extracurricular activities, unclear aim of their studying, rapid learning and teaching pace, lack of clarity on the student role and lack of feedback an encouragement from teachers were reported as the most stressful parts of medical school for students by Dahlin, et al. (2005). Moreover, Dahlin, et al. (2005) linked perceived stress with depression; four factors from the stress measure scale (Worries about future endurance⁄competence, Workload, Insufficient feedback and lack of commitment) had significant associations with depression. Furthermore, Ludwig, et al. (2015) report that perceived stress for medical students significantly increased from year 1 to year 3 of their studies as well as depression rates from 28.4% (1st year) to 39.0% (3rd year).

1.5.1.3. Young Adults, Students, Medical Students' Eating Behaviour as Coping Mechanism

As discussed above, experiencing stress for a prolonged period of time can lead to both physical and psychological symptoms. In order to avoid the negative consequences many tend to find and rely on various coping mechanisms (Algorani, E. B., et al., 2023). One of the coping strategies that people often rely on to alleviate psychological and emotional problems is eating. It often serves a self-soothing or numbing purpose (Wagener, A. M., et al., 2010). During periods of high stress students report that their eating patterns change drastically. Young adults stated to overconsume junk food to alleviate stress or in contrast, skip meals altogether. Male students displayed a tendency to overconsume food (67%) while female students were divided between reduced consumption (43%) and over consumption (57%). The results indicate a strong relationship between perceived stress and altered patterns of food consumption. It is important to note the difference in reported levels of perceived stress, between male and female students, with female students reporting higher levels of perceived stress, and hence higher chances of dietary changes than their male counterparts, highlighting a difference between the genders (Shah, Q. A., et al., 2024).

Button, (2014) investigated the extent of eating as a coping mechanism among healthcare students. Out of 120 participants 85% reporting using food consumption as a coping strategy when dealing with stress. Similarly to literature discussed so far, Button, (2014) reports, females (91.5%) use eating significantly more frequently as a coping mechanism than males (71.1%) indicating that the female student population is more susceptible to stress as well as maladaptive coping strategies.

Furthermore, 17.5% of the responses were indicative of an eating disorder. Implying such maladaptive coping strategies may lead to clinical health disorders.

On the other hand, Doğruel, et al., (2020) investigated how eating behaviours of medical students are associated with their ways of coping with stress. Contrary to other studies, they found no significant difference between male and female population when it comes to using food for coping and found no indications for disordered eating in their sample of medical students. The only significant association between eating behaviour and coping mechanisms found was seeking social support to help cope with stress and abnormal eating behaviours (over and under consumption).

1.5.2. Associations Between Stress and Eating Behaviour (Emotional and Stress Eating): Mechanisms and Possible Outcomes

1.5.2.1. Stress Eating

The stress eating relationship is complex and its nuances are unique and subjective to every person who experiences it. It is an interesting area where both physiology and behaviour interact among themselves under the influence of environmental factors (Stone et al., 1992). Lazarus and Folkman (1984) defined stress as "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (p. 19). This definition highlights the significance of the situation, the individual, and the individual's ability to manage that situation. Typically stress is referred to a physiological body's reaction to an environment trigger, during which cortisol is released as the "fight or flight" system kicks in. This reaction makes crucial changes in the body: endocrine system increases the production of hormones, including cortisol, to activate the body's stress response during which the body tries to save as much energy as possible and hunger is absent (Chu, et al., 2024). However, during such periods of prolonged stress due to repeated or continuous stressors, cortisol levels stay elevated causing increased food consumption that may lead to weight gain (Tips to Manage Stress Eating, 2024). Choi (2020) examined stress eating behaviours in a sample of 393 college students. They found that students who reported experiencing higher levels of stress consumed food more frequently, in particular unhealthy, fast food items. Furthermore, Lattimore and Caswell (2004) established that when participants are exposed to stress they consume more food than when stress is not present.

The existing literature mostly describes stress eating as a coping mechanism when experiencing a stressful, triggering situation, however it is not necessarily a healthy one as prolonged stress may lead to obesity or malnutrition. In line with this idea, those who reported higher stress levels also reported a tendency to consume more food than usual during stressful situations (Shah, Q. A., et al., 2024). Such increased food consumption can affect health negatively, as higher food consumption levels positively correlate with higher BMI scores (Meule et al., 2017). Stress has

become an unavoidable daily occurrence thus is it important to find positive coping mechanisms to manage it. If one continues to cope with stress with unhealthy eating behaviours, an increased BMI, obesity, and malnutrition are possible repercussions. Additionally, with increasing levels for worldwide obesity and related health risks, it is crucial to address this issue, especially in the context of medical students, who are likely to become important members of society upon graduating. Adam and Epel (2007) analysed stress eating in animals. They carried out a series of tests exposing rats to a variety of stressors and observing the impact on their eating behaviours. When exposed to acute, brief stressor such as a tail pinch the rats had a tendency to consume more food right after being exposed to the stressor. However, they ate less during a 24 hour period in order to compensate for the calories they consumed in response to the stressor. On the other hand, when exposed to chronic stress, they not only ate more food in response to the stressor, but also did not compensate for it for the remainder of the 24 hour period causing weight gain. Adam and Epel (2007) theorised that the rat behaviour model could be an analogue for humans as there are numerous daily stressors in the modern society as well as unlimited access to calorie dense, palatable food.

1.5.2.2. Emotional Eating

Emotions is a well understood concept that is used in day to lives to describe types of feelings that are aroused by a specific situation. They range from positive to neutral to negative, however, happiness, anger, disgust, fear, contempt, sadness, and surprise are universally accepted as the basic ones (Erkman, 1992). Although emotions are universal, reactions to those emotions vary from person to person. Arnow, et al. (1994) investigated the relationship between negative mood and disordered eating, such as binge eating, overeating. A strong relationship was found between negative mood and the desire to consume food. Similarly, another study analysed the relationship between perceived stress and emotional eating in a minor student sample (N=617) grades 7 to 8 (ages 14-15). The study found a significant relationship between perceived stress and emotional eating with BMI having no effect on this relationship (Nguyen-Rodriguez, T. S., et al., 2008).

Carpio-Arias et al. (2022) investigated the relationship between perceived stress and emotional eating in a sample of 2333 (Median age 25). Participants were divided into two groups: emotional eaters and non-emotional eaters. People who reported high levels of perceived stress fell into the emotional eaters category, those who reported low levels of stress – non-emotional eaters category. Moreover, emotions such as fear, uncertainty, despair caused changes in eating habits i.e. food consumption was either elevated or diminished (De Pasquale, et al., 2021).

The concept of emotional eating is built upon the psychosomatic theory which states emotional eaters are unable to separate hunger from body's physiological rection to negative emotions (Adriaanse, et al., 2009). This theory was tested in a sample of 99 African American female college

students (Mean age = 19.4). Women who reported experiencing more stress also scored higher on the emotional eating scale. Moreover, emotional eaters reported opting for foods higher in sugar and fats and were more likely to have a higher BMI. It is suggested that emotional eating is used to alleviate negative emotions, cope with social situations, or enhance pleasure (Diggins, et al., 2015).

Yilmazturk et al. (2023) investigated the difference of emotional eating as a response to stress between genders. A sample of 711 university students from Turkey (461 females, 250 males) were given self-report scales in order to measure eating behaviours, coping styles, and perceived stress. Results indicate a strong relationship between perceived stress and emotional eating for male students, and a strong relationship between emotional eating and emotional-focused coping for female. These findings support literature which states that emotional-focused coping is related to disordered eating in the female population.

With the studies discussed in this section, we can see that perceived levels of stress significantly impact eating behaviour. Additionally, those who perceive higher stress are likely to be emotional eaters and hence experience increased or diminished food consumption. As reported in Adriaanse et al. (2009), emotional eaters report a higher tendency to chose unhealthy food and exhibit higher BMIs. The Turkish sample studied by Yilmazturk et al. (2023) highlights a difference between the genders and their approach to emotional food consumption, with the discussed strong relationship between emotional eating and emotional-focused coping in females. This discussion hence further highlights the impact of stress and emotional eating on health and that it may impact females more than males.

1.5.3. Prevalence in Young Adults, Students, Medical Students' Population

Aljaber et al. (2019) attempted to study if and how stress affects eating habits of medical students. Their selected sample consisted of 105 Arabic male medical students. The study concentrated on the type of perceived stress that affected students' appetite and in turn caused them to consume more calory dense, unhealthy food. Students reported that too many demands from doctors, lack of concentration, worrying about exams, not being able to complete assignments in time were the most triggering stressors that affected their appetite. Furthermore, students reported not only they themselves choose to relive stress by consuming unhealthy food, but also their families offer food as a form of support during stressful periods. Aljaber et al. (2019) came to a conclusion that using food as a coping mechanism during times of high stress leads to the formation of unhealthy eating habits. As discussed in the section above, it is in line with studies that suggest increased food consumption during periods of increased levels of perceive stress (Arnow, et al. 1994)

We hypothesise that higher levels of perceived stress are positively associated with increased emotional and stress eating behaviour.

1.5.5. Associations Between Parental Nurturance and Eating Behaviours: Mechanisms and Possible Outcomes

1.5.5.1.Parental Nurturance and its Influence for Personality Development. Effects on Autonomy

Parental nurturance as a concept is two-dimensional: positive and problem related. Positive dimensions include academic performance, attachment style, prosocial development, whereas problem related dimensions include social withdrawal, internalizing disorders, and interpersonal difficulties (Locke, et al., 2002). It is safe to say that there are many nuances to the aspects of parental nurturance. One of them is expectations. Parents and emerging young adults have different expectations for emotional support and autonomy from each other. On one hand, parents expect young adults transitioning to attend college would become independent and hence rely less frequently on parental support. On the other hand, young adults in such scenario expect differently and require more emotional support than anticipated by their parents (Baete Kenyon, et al, 2009). Givertz, et al. (2014) examined how parental involvement levels can affect their young adult children's self-efficacy. A total of 339 parent-young adult child pairs took part in the study by filling out surveys. It was found that open communication and authoritative parenting were positively associated with confidence and life satisfaction in young adult children. On the other hand, controlling parenting style was associated with psychological entitlement, diminished self-efficacy. Hence, we can see the impact of various aspects of parental nurturance and their impact on life outcomes. As seen in Locke et al. (2020), the disparity between the expectation of parents and young-adult children is wide, and as discussed in the introduction, this disparity and the lack of parental nurturance might impact levels of perceived stress and eating behaviours.

1.5.5.2. Emotional Stability

Frank, et al. (1988) conducted a study that investigated how young adults perceive connection to their parents. Results indicate young women tend to be more connected to their parents than men, but both men and women reported having more connectedness with their mothers than fathers. This study indicates that even autonomous young adults benefit emotionally from being close to their parents. Furthermore, not only young adults benefit from this relationship, but their parents as well. Young adults aged 18-24 and their parents are highly involved in each other's lives as evident by frequent phone calls, financial and emotional support from parents. It is also noted that students

receive more support from their parents than non-students, and in turn, parents use their child's student status as an indication for future success. Having this parental nurturance positively contributes to young adult's life satisfaction (Fingerman, et al., 2011).

1.5.5.3. Coping Mechanisms

The literature describes many types of coping mechanisms as a response to stress such as social support, alcohol use, risky sexual behaviour, changes in eating behaviour. These coping strategies usually come to light when people experience stressful situations such as moving away to university or college (Zaleski, et al., 1998). All coping mechanisms mentioned above are often highly influenced by parents (Zaleski, et al., 1998). Since, for young adults these are learned behaviours that they brought from their childhoods. Thus, parents have a considerable influence on how their children cope with stress in their adult lives. Students who have more supportive and nurturing parents tend to use more problem focused coping strategies, whereas students receive less or no support from parents use emotion focused coping methods. Moreover, a parent-child relationship that is full of conflict is positively associated with emotional coping mechanism, and supportive parental relationship was found to be positively associated with adult children using social support when coping with stress (Ptacek, et al., 1999).

Additionally, Kolak, et al., (2018) found significant associations between family predictability and coping mechanisms. Their study focused on exploring how family closeness is linked to styles of coping. The results indicate that family unpredictability is associated with less family closeness, psychological distress, and emotion focused coping. This implies children who grow up in families who are not close and whose parents are unpredictable are more likely to experience psychological stress and use emotion focused coping mechanisms once they are adults. Although, less emotion focused coping was linked with less psychological distress. Furthermore, a stable family environment provides children with consistency and structure to help them grow as individuals, whilst lack of parental nurturance and discipline can negatively influence a child's emotional security. Kolak, et al., (2018) advocates for young adults to use more task focused coping methods instead of emotion focused in order to protect their mental health from negative impacts.

1.5.5.4. Affects on Psychological Health

Anxiety disorder is quite common among adults and children alike. One of the probable causes for this disorder, is parental control of several types: discipline, monitoring, psychological control. The literature indicates that people who grew up in an overprotective, conflictual environment that lacked nurture often face mental health difficulties in adulthood such as anxiety. Study participants described their parents as less supportive and democratic, not nurturing (Ballash, et al., 2006).

Affrunti, et al., (2014) investigated the effect of parental nurturance on anxiety levels in children. High levels of parental nurturance were found to not be a protective factor against childhood anxiety. On the contrary, research indicates that anxious children are not sensitive to parental warmth or emotional support. This means that parental nurturance helps to sustain symptoms of anxiety by decreasing the amount of anxiety inducing events the child is exposed to, with the aim of mitigating the child's distress. Therefore, when the child is not exposed to these types of situations they are unable to develop competent coping mechanism to deal with anxiety provoking life scenarios. Additionally, the child might even fail to develop understanding of what a threatening situation is. On the other hand, Affrunti, et al., (2014) indicates that parental nurturance helps children to manage stressful social situations by reducing stress levels and allowing the child to re-engage into social situations.

A twin study examined the effects of parental nurturance further. Vazquez, et al., (2024) had a sample of 426 pairs of twins who were exposed to environmental adversities such as familial poverty, neighbourhood poverty, and neighbourhood violence. The goal of their study was to investigate if parental nurturance is associated with three types of resilience (psychological resilience, academic resilience, social resilience). The results revealed that parental nurturance is significantly associated with all three types of resilience. Thus, indicating that parental nurturance can increase resilience of children. However, this study also notes that when levels of parental nurturance are low, genetic factors played a significantly larger role in youth resilience.

1.5.5.5. Stress During Early Development

In their study Loman et al. (2010) discusses how the stages of early childhood development parental nurturance play a crucial role, especially to the fight, flight, freeze or the stress response system. Low parental nurturance can cause sever chronic stress to infants resulting in problems with emotional regulation. Although, due to neuroplasticity at this early stage of development, if nurturance levels improve, the stress response system has the potential to reorganise and recover. However, if the child is exposed to prolonged and severe insufficient nurturance, their systems might be less capable of recovering resulting in life-long consequences. In a study carried out on rodents maternal stimuli such as licking or grooming can protect pups from stressors as well as aid the development of the stress and threat response systems. Haphazardous and disordered parental care in rodents made the stress system hyperactive to stressors, this may carry on throughout the rodent's lifetime making them hyper defensive. Similarly, children who are institutionalized or in foster care experiencing lack of parental nurturance are more reactive to stressors and struggle to form social attachment unlike their counterparts (Loman, et al., 2010).

1.5.5.6. Practical Application of Support and Involvement as Different Concepts

Humans have an evolutionary need to belong (Baumeister, et al., 2017). Ferguson (2020), in their analysis of A. Adler's motivational theory, describes this need as community integration or social belonging. In early childhood such needs can be met by getting parental support or nurturance. Infants rely on their parents for all their needs and they have to be met so the child could develop. In later stages of life the need for integration comes from social groups found at school as well as home. Ferguson (2020) suggests that not having this need met can cause great stress to an individual which may lead to psychological and physiological illnesses. In adulthood the need to belong persists and many try to integrate themselves into peer groups because of this. Anything that can risk them being cast out of their peer group is considered a significant risk. Therefore, humans turn to various coping mechanisms in order to keep fitting in and not stick out due to their "shortcomings" such as inability to handle stress or strong emotions (Ferguson, 2020). The risk of loneliness is far greater than having maladaptive coping strategies. Being integrated in a community allows one to have social support which can also act as a protective factor against stress and loneliness. While parental support is a big aspect in a young adult's life, having social support - meaning friends or romantic partners is significantly associated with lower levels of perceived stress (Lee, et al., 2016).

Furthermore, parental involvement and support have been found to have an effect on their children's mental health. Wang, et al. (2020) found consistent parental support and involvement in the academic process, fostering a supportive home environment led to positive emotional development and reduced the risk of mental health problems. Moreover, a positive educational environment creates a safe space for social development, encourages engagement, increases social, emotional, and behavioural success, reduces school related stress (Wang, et al., 2020).

At a university level, parental involvement can have dichotomous consequences. On one hand, university students often appreciate that their parents are interested and involved in their lives. Students tend to perceive this involvement as supportive and helpful, and it can help in the autonomy development process. On the other hand, some students do not appreciate their parents being involved as they perceive involvement as controlling behaviour. This group reports that their parents tend to control financial as well as career decisions, leave no space for autonomy. It is important to note that parental support does not only consist of making decisions for their young adult children. But rather listening, inquiring about their lives, respecting their independent decisions and boundaries, offering emotional support (Cullaty, 2011).

Medical students reportedly experience more stress that students of other professions, presenting a need for higher levels of support. Parental support influences students behaviour and emotional well-being greatly, thus the lack of it is liked to loneliness and depression. Parental emotional support can significantly reduce levels of stress and depression, strengthen positive

emotions, and encourage acceptance of negative emotions. Parental support in forms of empathy and genuine understanding may serve as a source of resilience for medical students facing hardship and difficulties during their time at university, whilst simultaneously enhancing their self-efficacy (Saravanan, et al., 2014).

1.5.6. Associations Between Parental Nurturance, Perceived Stress, and Eating Behaviours.

Literature finds many associations between parental nurturance and child's eating behaviours. One such main areas of focus being the effect of parenting styles on a child's eating habits. Parenting styles can be divided into four dimensions: high control/high nurture (authoritative), high control/low nurture (authoritarian), low control/high nurture (permissive/indulgent), low control/low nurture (uninvolved/rejecting). The only parenting style that was found to positively affect child's eating behaviour is high control/high nurture. Moreover, eating is often used as means of coping with a stressful situation. Stress can affect eating behaviours in different ways by either increasing or decreasing food consumption. Children who experience stress due to ineffective parenting, lack of nurture can often alter their eating behaviours in order to cope with it. When experienced stress becomes chronic – eating behaviours also change. The person tends to consume more snack type foods which are typically higher in calories and skip regular meals. When a child falls into a pattern of chronic stress while using food as a coping mechanism they become at high risk for childhood obesity. Furthermore, both high control and low control parenting styles have been found to be associated with increased risks of childhood obesity (El-Behadli, et al., 2015). Gahagan (2012) also explored the effects of parenting styles on child's eating behaviours. They found that low nurturance increases the risk of emotional eating and obesity, meaning that parental nurturance is a protective factor against poor eating behaviours.

Parental nurturance not only is associated with eating behaviours but also with perceived stress. Literature shows indication that increased nurturance from parents can lead to less perceived stress in adulthood. Donnelly, et al., (2013) investigated the impact of parental behaviour and its influence on a young adult's stress levels. Results indicate parent behaviours are significantly related with young adult's stress levels, with increased parental nurturance being associated with healthier levels of stress. Maternal nurturance was significantly associated with lower levels of stress, as well as levels of paternal nurturance had significant difference on stress levels. These results indicate that parental nurturance is an important and significant factor that influences young adults' levels of perceived stress.

1.6. Aim and Objectives

The aim of this study is to investigate relationships of II and III–year Lithuanian medical students' emotional eating, stress eating, parental nurturance, and stress.

Objectives:

1. To evaluate emotional eating behaviour in a medical student sample.
2. To analyse stress eating behaviour in a medical student sample.
3. To evaluate stress experienced by medical students.
4. To examine medical student's parental nurturing.
5. Investigate the relationship between emotional eating, stress eating, parental nurturance, and perceived stress.

To carry out objective 5 the following steps were formulated: first, the relationship between parental nurturance and perceived stress was assessed (multiple linear regression analysis); secondly the potential predictors for stress and emotional eating behaviour were determined (a binary logistic regression analysis was performed). Lastly – it was analysed if perceived stress and parental nurturance may predict emotional and stress eating behaviour (a multivariate logistic regression analysis was performed).

2. Research Methods

2.1. Study Procedure and Sample

The study was conducted in compliance with ethical rules and regulations, the necessary bioethical permit was obtained from the Lithuanian University of Health Science Bioethics committee under the number of 2024-BEC2-810. Additionally, the dean of faculty of Medicine of Lithuanian University of Health Science and the administrator of Vilnius University also provided their approval for the study to be conducted with students of medical faculties (please see appendices 2 and 3).

The study was carried out from 1st of September 2024 to 31st of December 2024 in the Lithuanian language. The self-report questionnaires were posted online on the ''Qualtrix'' survey platform that allows researchers to collect data online and ensures the anonymity of respondents, thus the participants were able to take part in the study at the time of their convenience. All responses were collected anonymously; informed consent was provided to all study participants.

Subjects taking part in this research were II and III-year Lithuanian medical students from Lithuanian University of Health Science and Vilnius University. Age ranging from 18 to 36 years old with the majority of the participants being female (77,9%). Distribution between II and III-year was similar – 57,8% and 42,2% respectively with more than half of the participants indicating that they are currently in their second year of study (see table 1).

Convenience sampling was used in this study. Upon gaining the permissions of relevant faculties in both Lithuanian University of Health Science and Vilnius University an anonymous survey link was created. To reach II and III-medical students at the Lithuanian University of Health Science, the anonymous link was sent via university email only including the code for the year to ensure anonymity. In order to reach Vilnius University students the survey link was posted on the university website where is could be utilised at their own convenience. A total of 231 students agreed to take part in the study, (responses from 1 student was excluded from the final data as they did not agree to informed consent) 76 participants were excluded as they only agreed to informed consent, but did not take part in the further survey. Furthermore, only 114 (73.5%) participants out of the 155 answered the survey in its entirety, and 41 (26.5%) took part in the demographic survey only. According to data from Lithuanian University of Health Science and Vilnius University there are approximately 1400 (Karpijūtė, 2024, Kas mes-Medicinos fakultetas, n.d.) medical students in II and III-year of studies (exact numbers have not been published). Based on this information, the overall response rate for this study was 16.5%.

Table 1. Socio-demographic characteristics of study participants

Characteristic	N	N Total	Percent
Gender			
Female	120	154	77.9
Male	32		20.8
Other	2		1.3
Age			
18	2		0.9
19	16		6.9
20	67		29.0
21	40		17.3
22	16		6,9
23	5	155	2,2
24	4		1,7
25	1		0,4
27	1		0,4
29	1		0,4
35	1		0,4
36	1		0,4
Year of study			
II	89	154	57,8
III	65		42,2
University			
LUHS	126	154	81,8
VU	28		18,2
Living with parents			
Yes	60	154	39
No	94		61
BMI			
Underweight	17		11.2
Normal weight	111	152	73.0
Overweight	16		10.5
Obesity	8		5.3

A series of statistical tests were performed (see table 2) to compare the demographic data of participants who took part in the whole survey and those who only provided their demographic information. No statistically significant differences were found between the two groups.

Table 2. Differences between study participants

Variable	Took part in the whole survey N	Took part in demographics only N	Test used	Test statistic	p
Gender	113	41	Fisher-Freeman-Halton Exact	-	1.000
Age	114	41	Mann-Whitney U	U=2666.00	0.159
Year of study	114	40	Chi-Square	$\chi^2(1)=0.002$	0.965
Place of study	114	40	Chi-Square	$\chi^2(1)=2.43$	0.119
Living with parents (Yes/No)	113	41	Chi-Square	$\chi^2(1)=1.28$	0.258
BMI	111	41	Chi-Square	$\chi^2(3)=2.33$	0.507

**U=Mann-Whitney U, χ^2=Chi-square*

2.2. Research Instruments

2.2.1. Perceived Stress

Perceived stress was measured with the Medical Student Stressor Questionnaire (MSSQ) (Yousoff, et al., 2012). Authors of this instrument permit its use for non-profit purposes thus additional permission was not requested. The scale was translated into Lithuanian for the purpose of this study using double back translation by a doc. dr. and a MSc student, both fluent in Lithuanian and English.

MSSQ is a 40 item self-report questionnaire that is designed to evaluate the frequency and sources of stress for medical students. Each item was measured on a five-point Likert-scale ranging from ''Causing no stress at all'' to ''Causing severe stress'' with higher scores indicating more perceived stress. The scale consists of 6 stressor subscales: academic related stressors, interpersonal and intrapersonal related stressors, teaching and learning-related stressors, social related stressors, drive and desired related stressors, group activities related stressors. The authors indicate high internal consistency, with the Cronbach's alpha for the entire instrument being 0.95 (Yousoff, et al., 2012). The current study also found high internal consistency for the overall instrument (α=0.95). Yousoff, et al., (2012) also indicated good internal consistency for each of the domains: academic related stressors α=0.92, interpersonal and intrapersonal related stressors α=0.90, teaching and learning-related stressors α=0.86, social related stressors α=0.71, drive and desired related stressors α=0.65, group activities related stressors α=0.73 which are similarly represented in the current study (α=0.90, α=0.88, α=0.88, α=0.71, α=0.48, α=0.73 respectively) see table 2. Although Chronbach's α for drive and desire related stressors was relatively low (α=0.48), according to Taber (2018) it can be described as ''acceptable'' or ''sufficient''.

Perceived stress was analysed by calculating mean scores of items in their respective categories: academic related stressors (items 1, 4, 7, 10, 12, 17, 19, 23, 25, 27, 30, 33, 36), interpersonal and intrapersonal related stressors (items 3, 5, 9, 26, 28, 31, 39), teaching and learning related stressors (items 8, 14, 16, 20, 22, 35, 37), social related stressors (items 2, 18, 21, 24, 29, 38), drive and desire related stressors (items 6, 32, 40), group activities related stressors (items 11, 13, 15, 34).

2.2.2. Emotional Eating

Emotional eating was measured with Salzburg Emotional Eating Scale (SEES) (Meule, et al., 2018). Permission to use this instrument was obtained on 26th of April 2024 from Dr. Julia Reichenberger. It was translated into Lithuanian for the purpose of this study, by utilising double back translation, carried out by a doc. dr. and a MSc student both fluent in Lithuanian and English.

SEES is a 20 item self-report questionnaire which measures changes in eating behaviours in response to emotions. Responses are scored on a five-point Likert-scale with answers ranging from ''I eat much less than usual'' to ''I eat much more than usual'' with higher scores indicating greater food consumption when faced with a particular emotion. Additionally, the scale has 4 factors (5 questions each): happiness, sadness, anger, and anxiety. For each factor sums are calculated and computed into new variables that have 3 categories: ''Eats less when experiencing these emotions'' (score < 3), ''eats the same amount as usual when experiencing these emotions'' (score = 3), ''eats more when experiencing these emotions'' (score > 3); higher scores indicated higher food consumption. The authors of the instrument show high internal consistency with Chronbach's alpha being at .90 for the overall scale, and for the 4 factors as follows: happiness α=0.87, sadness α=0.86, anger α=0.86, anxiety α=0.82 (Meule, et al., 2018). The current study also shows an acceptable score of internal consistency α=0.86 for the overall instrument, and Chronbach's alpha ranging from 0.79 to 0.89 for the 4 factors (see table 2).

As suggested by the authors (Meule, et al., 2018), emotional eating was analysed by calculating mean scores of items in their 4 categories: happiness (items 1-5), sadness (items 6-10), anger (items 11-15), anxiety (items 16-20).

2.2.3. Stress Eating

In this current study stress eating was measured with Salzburg Stress Eating Scale (SSES) (Meule, et al., 2018). Permission to use this scale was granted on 12th of March 2024 by Dr. Julia Reichenberger. The SSES was translated into Lithuanian for the purpose of this study using double back translation by a doc. dr. and a MSc student both fluent in Lithuanian and English.

SSES is a 10 item self-report scale that measures changes in eating behaviours in response to stress experience. This tool is scored on a five-point Likert-scale with answers ranging from ''I eat

much less than usual'' to ''I eat much more than usual'' where higher scores indicate more food being consumed. This scale has a one-factorial structure, and in order to measure food consumption tendencies the mean score is calculated and divided into 3 categories: ''eats less when stressed'' (score < 3), ''eats the same when stressed'' (score = 3), ''eats more when stressed'' (score > 3). Meule, et al., (2018) indicate strong internal consistency for the instrument (α=00.90), similar results can also be seen in the current research with Chronbach's alpha for the SSES being at 0.93 (see table 2).

As suggested by the authors (Meule, et al., 2018), stress eating was assessed also by computing an overall mean score, there were no reverse coded items or subscales.

2.2.4. Parental Nurturance

To assess parental nurturance in this study the Parental Nurturance Scale (PNS) (Buri, 1989) was used. Permission to use this tool was obtained on 22nd of February 2024 from Dr. John R. Buri. The PNS was translated into Lithuanian for the purpose of this study using double back translation by a doc. dr. and a MSc student both fluent in Lithuanian and English.

PNS is a 24 item self-report scale that measures parental nurturance from the perspective of the offspring. This tool is scored on a five-point Likert-scale with scores ranging from ''strongly disagree'' to ''strongly agree''. To evaluate parental nurturance all scores are summed up (reverse scoring for items 1, 3, 7, 8, 11, 13, 14, 16, 18, 19, 21, and 24) higher scores indicating higher level of parental nurturance. Identical forms of this measure are used to assess both motherly and fatherly nurturance (Buri, 1989). The author of the instrument found strong internal consistency for both mother's nurturance scale (α=0.95) and father's nurturance scale (α=0.93). In comparison, the current study found an even stronger internal consistency for both mother and father's nurturance scales (α=0.97) see table 3. Parental nurturance was analysed by calculating sum scores separately for maternal and paternal nurturance.

Table 3. Instruments used in the current study and presented by authors

Measure	Number of questions	Chronbach's α (presented by questionnaire's author/s)	Authors, year	Chronbach's α (current study)
MSSQ	40	0.95	Yousoff, et. al., (2012)	0.95
Academic related stressors	13	0.92		0.90
Inter and intrapersonal related stressors	7	0.90		0.88
Teaching and learning-related stressors	7	0.88		0.88
Social related stressors	6	0.71		0.71
Drive and desired related stressors	3	0.65		0.48
Group activities related stressors	4	0.73		0.73
SEES	20	0.90	Meule, et. al., (2018)	0.86
Happiness	5	0.87		0.79
Sadness	5	0.86		0.83
Anger	5	0.86		0.82
Anxiety	5	0.82		0.89
SSES	20	0.90	Meule, et. al., (2018)	0.93
PNS Mother	24	0.95	Buri, (1989)	0.97
PNS Father	24	0.93		0.97

2.2.5. Body Mass Index

To calculate the body mass index (BMI) in this study the participants were asked to provide their height and weight. The data was then calculated using SPSS with a BMI calculation formula kg/m^2 by which a persons weight in kilograms is divided by the square of their height in meters (WHO, 2010). For the purpose of this study BMI was then categorized into 4 categories: underweight (a score less than 18.5), normal weight (a score from 18.5 to 24.9), overweight (a score ranging from 25.0 to 29.0), obese (a score of 30.0 and more) (Flegal, et al., 2014).

2.3. Data Analysis Methods

The data that was collected in this study was analysed using IBM SPSS Statistics version 30.0.0.0 (172), and MS Excel softwares.

One-way between subjects ANOVA was conducted to investigate relationships between BMI and eating behaviour. To assess associations between gender and eating behaviours Fisher's exact test was used, as they were nominal variables that did not meet the assumptions for chi-squared test. Pearson's correlation was used to gauge the linear relationships among perceived stress scales, and between maternal and paternal nurturance. Spearman's correlation analysis was also conducted to investigate the relationships between age, parental nurturance, and perceived stress. Kruskal-Wallis test was used to assess the difference among BMI categories and happiness related eating behaviour, as well as differences among genders in perceived stress subscales and parental nurturance. Independent samples t-test was used to determine differences between male and female students in the perceived stress subscales. Multiple linear regression analysis was conducted to explore if parental nurturance can be a predictor for perceived stress subscales. Univariate logistic regression was performed to identify if parental nurturance and perceived stress could be potential predictors for emotional eating categories (happiness, sadness, anxiety, anger) and stress eating. Lastly, multivariate logistic regression analysis was performed to examine the effects of each predictor (academic related stressors, interpersonal and intrapersonal related stressors, teaching and learning related stressors, social related stressors, drive and desire related stressors, group activities related stressors, maternal nurturance, paternal nurturance) on the probability of participants eating more food than usual rather than eating the same or less food than usual when experiencing specific emotions (happiness, sadness, anxiousness, anger, stress).

Significance level for the purpose of this study was set at 0.05

3. Results

3.1. Emotional Eating

3.1.1. Descriptive Statistics of Emotional Eating

Descriptive analysis was conducted to examine key characteristics of emotional eating of SEES categories (see table 4). Results revealed that sadness (M=3.1, SD=0.88), anger (M=2.6, SD=0.76), and anxiety (M=2.6, SD=0.89) subscales were normally distributed. However, happiness subscale (M=3.1, SD=0.42) category was not. Anger and sadness categories were slightly negatively skewed (-0.06 and -0.13 respectively), whereas anxiety category indicated a mild positive skew (skewness=0.31). Happiness category was the only one that was not normally distributed (skewness=0.87, kurtosis=2.52) – majority of the participants reported consuming the usual or lower amount of food when feeling happy with most of the respondents choosing the ”I eat just as much as usual” option. Minimum and maximum scores ranged from 1 to 5 (except for happiness subscale 2 to 5) indicating a diversity in responses across participants.

Table 4. Descriptive characteristics of emotional eating categories (N=113)

Construct		M	SD	Percentiles			Skewness	Kurtosis
				25	50	75		
Emotional eating	Happiness	3.1	0.42	3.00	3.00	3.20	0.87	2.52
	Sadness	3.1	0.88	2.40	3.20	4.00	-0.13	-0.88
	Anger	2.6	0.76	2.00	2.60	3.00	-0.06	-0.29
	Anxiety	2.6	0.89	2.00	2.40	3.00	0.31	-0.20

**M=mean, SD=standard deviation*

Spearman’s correlation was conducted to determine a relationship between each of the emotional eating subscales (see table 5). The analysis revealed that happiness subscale had a significant, weak, negative correlation with sadness (rho=-0.24, p=0.009) and anger (rho=0.24, p=0.010) subscales. Sadness category was significantly, moderately, positively correlated with anger (rho=0.40, p=0.001) and anxiety (rho=0.38, p<0.001) categories. Lastly, anger subscale had a significant, moderate, positive correlation with anxiety subscale (rho=0.59, p=0.001). These results suggest that participants report similar eating behaviours when feeling negative emotions (sadness, anger, anxiety), however, happiness related eating was negatively related with sadness, anger, and anxiety related food consumption.

Table 5. Emotional eating subscales' corelations (N=113)

		Happiness	Sadness	Anger	Anxiety
Happiness	rho		-0.24	-0.24	-0.06
	p		**0.009**	0.010	0.501
Sadness	rho	-0.24		0.40	0.38
	p	**0.009**		**<0.001**	**<0.001**
Anger	rho	-0.24	0.40		0.59
	p	0.010	**<0.001**		**<0.001**
Anxiety	rho	-0.06	0.38	0.59	
	p	0.501	**<0.001**	**<0.001**	

**Significant p values are bolded, rho=Spearman's coefficient*

3.1.2. Emotional Eating by Gender, BMI, and Age

Fisher-Freeman-Halton exact test was computed to determine how emotional eating differs by gender (see table 6). Results indicated that there was no statistical significance in gender differences for sadness related eating (p=0.072). 100% of other and 54.2% of male participants reported eating more than usual when feeling sad in comparison to 48.3% of female participants. Anger related eating also indicated no statistical significance across genders (p=0.701), with majority of the respondents reporting eating less than usual (63.2% of females, 54.2% of males, 50.0% of non-binary individuals). Similarly, anxiety related eating also showed no significance across genders (p=0.146) with 54.9% of all participants reporting consuming less food than usual when feeling anxious. Happiness category also did not differ significantly across genders (p=0.257), however unlike when feeling negative emotions, 44.2% of participants reported eating the same as usual when feeling happy (57.5% of females, 58.3% of males, 50.0% of non-binary respondents).

Table 6. Emotional eating across genders (N=113)

Emotion	Eating behaviour	Female (%)	Male (%)	Other (%)	p
Happiness	Eats less than usual	11.5	0.9	0.9	0.257
	Eats the same as usual	44.2	12.4	0.9	
	Eats more than usual	21.2	8.0	0.0	
Sadness	Eats less than usual	32.7	4.4	0.0	0.072
	Eats the same as usual	7.1	5.3	0.0	
	Eats more than usual	37.2	11.5	1.8	
Anger	Eats less than usual	48.7	11.5	0.9	0.701
	Eats the same as usual	11.5	4.4	0.0	
	Eats more than usual	16.8	5.3	0.9	
Anxiety	Eats less than usual	54.9	12.4	0.9	0.146
	Eats the same as usual	4.4	4.4	0.0	
	Eats more than usual	17.7	4.4	0.9	

One-way between subjects ANOVA (see table 7) was computed to examine difference of sadness, anger, and anxiety related eating and BMI. The analysis indicated that only anxiety related emotional eating was significantly different across BMI categories (F=3.12, p=0.029). Underweight participants had the lowest mean score of 2.2 (SD=0.78) in comparison to obese individuals who had the highest mean score of 3.2 (SD=1.62). A further Post Hoc least significant difference (see table 8) examination showed that there was a significant difference between underweight and overweight (p=0.008), underweight and obese (p=0.046) individuals in anxiety subscale. Participants in the normal weight category also differed significantly from participants in the overweight category (p=0.036). Even though, sadness related eating did not indicate statistical difference across BMI categories in the initial one-way between subjects ANOVA test (F=2.58, p=0.057), Post Hoc LSD analysis revealed that participants in the underweight category reported significantly lower scores on the sadness subscale in comparison to participants in the overweight category (p=0.039) with mean difference being -0.71. Underweight individuals also differed significantly from obese individuals (M difference=-1.18, p=0.017). Similarly, anger related eating did not reach significant difference across BMI categories (F=1.79, p=0.154), but Post Hoc LDS comparisons revealed a significant difference between normal weight and obese categories (M difference=-0.75, p=0.039) in sadness subscale, and between normal weight and overweight (M difference=-0.57, p=0.036) individuals in anxiety subscale. Overall, these results indicate that there is a relationship between BMI categories and emotional eating: higher BMI scores indicate higher scores on emotional eating subscales (sadness, anxiety).

Table 7. Means of emotional eating subscales sadness, anger, anxiety by BMI (N=113)

Emotional eating/BMI		**M**	**SD**	**F**	**p**
Sadness	Underweight	2.7	0.82	2.58	0.057
	Normal weight	3.1	0.84		
	Overweight	3.4	0.82		
	Obese	3.9	1.21		
Anger	Underweight	2.3	0.76	1.79	0.154
	Normal weight	2.6	0.73		
	Overweight	3.0	0.62		
	Obese	2.9	1.51		
Anxiety	Underweight	2.2	0.78	3.12	**0.029**
	Normal weight	2.5	0.85		
	Overweight	3.1	0.76		
	Obese	3.2	1.62		

**M=mean, SD=standard deviation, significant p values are bolded*

Table 8. Post Hoc LSD comparisons of emotional eating across BMI categories

Emotion	BMI category		p	95% CI Lower	95% CI Upper
Sadness	Normal weight	Underweight	0.098	-0.08	0.93
		Overweight	0.277	-0.81	0.23
		Obese	**0.039**	-1.62	0.11
Anxiety	Normal weight	Underweight	0.165	-0.15	0.87
		Overweight	**0.036**	-1.10	-0.04
		Obese	0.154	-1.51	0.24

**Significant p values are bolded*

For happiness subscale Kruskal-Wallis test was used (see table 9) as happiness category was not normally distributed. The results indicated that there was no significant difference in happiness related eating across BMI categories (underweight, normal weight, overweight, obese) H(3)=3.70, p=0.296. The mean ranks of happiness related eating were 56.4 for underweight, 57.2 for normal weight, 56.7 for overweight, 28.8 for obese categories. Post Hoc comparisons using Bonferroni correction reiterated that mean rank of happiness subscale was not significantly difference between any of the BMI groups (p>0.05).

Table 9. Happiness related eating across BMI categories (N=113)

Emotion	BMI category	Mean rank	H	p
Happiness	Underweight	56.4	3.70	0.296
	Normal weight	57.2		
	Overweight	56.7		
	Obese	28.8		

**H=Kruskal-Wallis H*

Spearman's correlation analysis (see table 10) was conducted to examine the association between participant's age and emotional eating subscale scores. The results showed that the age of the participants was not significantly correlated with happiness (rho=-0.04, p=0.702), sadness (rho=0.01, p=0.986), anger (p=0.253, rho=-0.11), or anxiety (p=0.913, rho=0.01) suggesting that there was no correlation of age and emotional eating behaviours in this sample.

Table 10. Correlation between age and emotional eating (N=114)

		Age
Happiness	rho	-0.04
	p	0.702
Sadness	rho	0.01
	p	0.986
Anger	rho	-0.11
	p	0.253
Anxiety	rho	0.01
	p	0.913

**rho=Spearman's coefficient*

3.2. Stress eating

3.2.1. Descriptive Statistics of Stress Eating

Descriptive analysis was conducted to examine key characteristics of SSES (see table 11). Results showed that stress eating variable had skewness of 0.17 and kurtosis of -0.30 indicating it was normally distributed (M=2.7, SD=0.84). The minimum and maximum scores ranging from 1 to 5 demonstrating a widespread distribution of responses across all participants.

Table 11. Descriptive characteristics of Salzburg stress eating scale (N=113)

Construct	M	SD	Percentiles			Skewness	Kurtosis
			25	50	75		
Stress eating	2.7	0.84	2.10	2.65	3.20	0.17	-0.30

**M=mean, SD=standard deviation*

3.2.2. Stress Eating by Gender, BMI, and Age

Fisher's exact test was computed to determine how stress eating differs by gender (see table 12). Majority of participants (65.5%) reported consuming smaller amount of food than usual when feeling stressed (64.4% of females, 70.8% of males, 50.0% of other), followed by 26.5% of participants who reported eating more than usual when stressed, and only 8% of individuals indicated that they eat the same amount as usual when stressed. However, Fisher's exact test revealed that there was no significant association between gender and stress eating behaviour (p=0.812)

Table 12. Stress eating across genders (N=113)

	Eating behaviour	Female (%)	Male (%)	Other (%)	p
Stress eating	Eats less than usual	49.6	15.0	0.9	0.812
	Eats the same as usual	6.2	1.8	0.0	
	Eats more than usual	21.2	4.4	0.9	

One-way between subjects ANOVA (see table 13) was computed to examine differences between stress eating and BMI categories. The analysis indicated that there was a statistically significant difference between stress eating and BMI categories (F=5.22, p=0.002). A further Post Hoc LSD examination (see table 14) showed that students in the underweight category reported significantly lower levels of food consumption when stressed when compared to participants in the normal weight (M difference=-0.53, p=0.028), overweight (M difference=-1.12, p=0.001), and obese (M difference=-1.31, p=0.005) categories. Individuals in the normal weight category reported significantly lower stress eating scores than participants in the overweight category (M difference=-0.58, p=0.021,). However there was no statistically significant difference between the normal weight and obese categories (p=0.063) or overweight and obese categories (p=0.680).

Table 13. Mean of stress eating by BMI (N=113)

	BMI	M	SD	F	p
Stress eating	Underweight	2.1	0.74	5.22	**0.002**
	Normal weight	2.6	0.80		
	Overweight	3.2	0.81		
	Obese	3.4	1.13		

**M=mean, SD=standard deviation, significant p values are bolded*

Table 14. Post Hoc LSD comparisons of stress eating across BMI categories (N=113)

BMI category			p	95% CI Lower	95% CI Upper
Stress eating	Normal weight	Underweight	**0.028**	0.06	1.01
		Overweight	**0.021**	-1.07	-0.09
		Obese	0.063	-1.59	0.04

**Significant p values are bolded*

Spearman's correlation analysis was conducted to determine the relationship between the age of participants and their stress eating scores (see table 15). Results revealed that there was a negative weak, nonsignificant correlation between eating when stressed and age (rho=-0.11, p=0.263) indicating that there was no association between participant's age and their reported levels of food consumption when stressed.

Table 15. Correlation between age and stress eating (N=114)

		Age
Stress eating	rho	-0.11
	p	0.263

**rho=Spearman's coefficient*

3.3. Perceived Stress

3.3.1. Descriptive Statistics of Perceived Stress

Descriptive analysis was conducted to examine key characteristics of MSSQ subscales (see Table 16). Results indicated that subscales had mean scores of 3.8 (SD=0.70) for academic related stressors, 3.5 (SD=0.91) interpersonal and intrapersonal related stressors 3.3 (SD=0.83) teaching and learning related stressors, 3.1 (SD=0.70) social related stressors, 2.6 (SD=0.86) drive and desire related stressors, 3.3 (SD=0.96) group activities related stressors indicating moderate to high levels (Yousoff, et al., 2012) of stress across all subscales. Overall, all subscales were distributed normally with academic related and interpersonal and intrapersonal related stressors showing a slight left skew (skewness -0.38 and -0.46 respectively), and drive and desire related stressors indicating slight right skew (skewness=0.45). The minimum and maximum scores ranged from 1 to 5 (except for academic related stressors subscale 2-5) which indicate a range of stress levels across all subscales.

Table 16. Descriptive characteristics of medical students stressors subscales (N=113)

	Construct	M	SD	Percentiles			Skewness	Kurtosis
				25	50	75		
Perceived stress	Academic related stressors	3.8	0.70	3.00	4.00	4.00	-0.38	0.28
	Interpersonal & Intrapersonal related stressors	3.5	0.91	3.00	4.00	4.00	-0.46	0.18
	Teaching & Learning related stressors	3.3	0.83	3.00	3.00	4.00	-0.14	-0.44
	Social related stressors	3.1	0.70	3.00	3.00	4.00	-0.27	-0.35
	Drive & Desire related stressors	2.6	0.86	2.00	2.00	3.00	0.45	0.02
	Group Activities related stressors	3.3	0.96	3.00	3.00	4.00	-0.10	-0.19

**M=mean, SD=standard deviation*

Pearson's correlation was conducted to determine a relationship between each of the perceived stress categories (see table 17). It revealed that there was a significant positive relationship between academic and teaching and learning related stressors (r=0.74, p=0.001,), and between academic and social related stressors (r=0.65, p=0.001,). The analysis also indicated a moderate positive correlation between teaching and learning and social related stressors (r=0.56, p=0.001), teaching and learning, and drive and desire related stressors (r=0.49, p<0.001,), teaching and learning and group activities related stressors (r=0.48, p=0.001). Meaning that participants who reported elevated levels of stress in one category also reported higher levels of stress in others.

Table 17. Medical students stressors questionnaire's subscale correlations (N=113)

		Academic related stressors	Interpersonal & Intrapersonal related stressors	Teaching & Learning related stressors	Social related stressors	Drive & Desire related stressors	Group Activities related stressors
Academic related stressors	r		0.57	0.74	0.65	0.33	0.46
	p		**<0.001**	**<0.001**	**<0.001**	**<0.001**	**<0.001**
Interpersonal & Intrapersonal related stressors	r	0.57		0.45	0.47	0.34	0.36
	p	**<0.001**		**<0.001**	**<0.001**	**<0.001**	**<0.001**
Teaching & Learning related stressors	r	0.74	0.45		0.56	0.49	0.48
	p	**<0.001**	**<0.001**		**<0.001**	**<0.001**	**<0.001**
Social related stressors	r	0.65	0.47	0.56		0.44	0.29
	p	**<0.001**	**<0.001**	**<0.001**		**<0.001**	**0.002**
Drive & Desire related stressors	r	0.33	0.34	0.49	0.44		0.33
	p	**<0.001**	**<0.001**	**<0.001**	**<0.001**		**<0.001**
Group Activities related stressors	r	0.46	0.36	0.48	0.29	0.33	
	p	**<0.001**	**<0.001**	**<0.001**	**0.002**	**<0.001**	

**Significant p values a bolded, r = Pearson's correlation coefficient*

3.3.2. Perceived Stress by Gender and Age

To assess the differences of perceived stress among gender groups Kruskal-Wallis test was used (see table 18). It was selected as the category ''other'' had a sample size of 2, thus violated assumptions of parametric tests. It is important to note that whilst the sample size is small, Kruskal-Wallis is a valid option for descriptive and exploratory analysis (Choi, et al., 2003). Significant differences were found in these categories: academic related stressors ($H(2)=7.45$, $p=0.024$), interpersonal and intrapersonal related stressors ($H(2)=9.45$, $p=0.009$), social related stressors ($H(2)=6.32$, $p=0.042$). Further an independent samples t-test (see table 19) was used for further pairwise comparisons in each of the categories as a more robust alternative. Since the group ''other'' had a sample size of 2 it was excluded from this analysis. T-test revealed that female students ($M=3.93$, $SD=0.64$) reported significantly higher scores than male students ($M=3.50$, $SD=0.83$) in the academic related stressors subscale ($t(31)=2.35$, $p=0.026$). Significant differences were also found in the interpersonal and interpersonal stressors subscale ($t(109)=3.37$, $p=0.001$), and in the social related stressors subscale ($t(108)=2.62$, $p=0.010$) with female students reporting higher scores than their male peers.

Table 18. Mean medical students stressor questionnaire's subscales by gender (N=113)

Perceived stress category/Gender		Mean Rank	H	p
Academic related stressors	Male	42.75	7.45	**0.024**
	Female	60.77		
	Other	64.00		
Interpersonal & Intrapersonal related stressors	Male	39.92	9.45	**0.009**
	Female	61.75		
	Other	55.50		
Teaching & Learning related stressors	Male	45.37	5.54	0.063
	Female	58.74		
	Other	87.00		
Social related stressors	Male	43.65	6.32	**0.042**
	Female	59.67		
	Other	74.25		
Drive & Desire related stressors	Male	47.71	3.57	0.168
	Female	59.08		
	Other	78.00		
Group Activities related stressors	Male	48.67	2.29	0.318
	Female	59.09		
	Other	66.00		

**H=Kruskal-Wallis H, significant p values are bolded*

Table 19. Medical students stressor questionnaire's subscales differences between males and females. (N=111)

MSSQ	Gender	M	SD	t	p
Academic related stressors	Female	3.93	0.64	2.72	**0.026**
	Male	3.50	0.83		
Interpersonal & Intrapersonal related stressors	Female	3.64	0.85	3.07	**0.001**
	Male	2.96	1.00		
Teaching & Learning related stressors	Female	3.32	0.80	1.73	0.062
	Male	2.96	0.93		
Social related stressors	Female	3.16	0.65	2.34	**0.010**
	Male	2.75	0.79		
Drive & Desire related stressors	Female	2.62	0.85	1.17	0.222
	Male	2.38	0.92		
Group Activities related stressors	Female	3.32	0.91	1.27	0.150
	Male	3.00	1.14		

**Significant p values are bolded*

Spearman's correlation analysis was conducted to examine the association between participant's age and perceived stress scores (please see table 20). Negative weak correlations were

found between age and: academic related stressors (rho=-0.16), interpersonal and intrapersonal related stressors (rho=-0.15). A weak positive correlation was found between age and drive and desire related stressors (rho=0.11). However, none of the correlations found were statistically significant (p=0.097, p=0.114, p=0.230 respectively). These results indicate that age did not have a significant association with perceived levels of stress across all categories.

Table 20. Medical students stressor questionnaire's subscales' correlation with age (N=113)

		Age
Academic related stressors	rho	-0.16
	p	0.097
Interpersonal & Intrapersonal related stressors	rho	-0.15
	p	0.114
Teaching & Learning related stressors	rho	0.05
	p	0.632
Social related stressors	rho	0.00
	p	0.99
Drive & Desire related stressors	rho	0.11
	p	0.230
Group Activities related stressors	rho	-0.05
	p	0.619

**rho = Spearman's correlation coefficient*

3.4. Parental Nurturance

3.4.1. Descriptive Statistics of Parental Nurturance

Descriptive analysis was conducted to examine key characteristics of PNS for both motherly and fatherly nurturance (see Table 21). Results showed that both nurturance variables had mean scores of 97.1 (SD=19.54) for motherly nurturance and 87.8 (SD=23.22) for fatherly nurturance. Minimum score for mother being 43, and for father 29; maximum – 120 for both. This suggests that generally participants reported an above average level of parental nurturance from both of the parents. Overall the scales indicated normal distribution with motherly nurturance being moderately negatively skewed (skewness=-0.84), and paternal nurturance scale being mildly negatively skewed (skewness=-0.50). Minimum scores for maternal nurturance being 43, and for paternal 29; maximum – 120 for both indicate a widespread distribution across all items of the scales.

Table 21. Descriptive characteristics of parental nurturance scale (N=113)

Construct		M	SD	Percentiles			Skewness	Kurtosis
				25	50	75		
Parental nurturance	Mother	97.1	19.54	84.75	99.50	115.00	-0.84	0.05
	Father	87.8	23.22	71.00	91.50	108.00	-0.50	-0.51

**M=mean, SD=standard deviation*

Pearson's correlation analysis was conducted to examine the relationship between maternal and paternal nurturance (see table 22). Results showed a moderate, positive, statistically significant correlation between both nurturance scales (r=0.52, p=0.001). This suggests that higher scores of maternal nurturance scale were associated with higher scores of paternal nurturance scale.

Table 22. Maternal and Paternal Mean correlation

		Paternal Nurturance
Maternal Nurturance	r	0.52
	p	**<0.001**

**Significant p values a bolded, r = Pearson's correlation coefficient*

3.4.2. Parental Nurturance by Gender and Age

Non-parametric Kruskal-Wallis test was used (see table 23) as the category ''other'' had 2 respondents, thus did not fit the criteria for one way ANOVA and Kruskal-Wallis is a valid option for descriptive and exploratory analysis (Choi, et al., 2003). No statistically significant difference was found (both motherly H(2)=0.52, p=0.772, and fatherly H(2)=0.91, p=0.635) across genders, meaning that perceived parental nurturance levels were not influenced by gender of the respondents.

Table 23. Mean parental nurturance by gender (N=113)

PNS/Gender		**Mean Rank**	**H**	**p**
Mother	Male	60.21	0.52	0.772
	Female	56.39		
	Other	45.25		
Father	Male	56.77	0.91	0.635
	Female	57.56		
	Other	35.25		

**H=Kruskal-Wallis H*

Spearman's correlation analysis was conducted to examine the association between participant's age and parental nurturance scores (see table 24). The analysis revealed that there were no significant correlations between participants' age and maternal (rho=-0.01, p=0.965) or paternal (rho=-0.03, p=0.762) nurturance. Meaning that there was no statistically significant variation in perceived parental nurturance by age in this sample.

Table 24. Parental nurturance's correlation with age (N=113)

		Age
Maternal Nurturance	rho	-0.01
	p	0.965
Paternal Nurturance	rho	-0.03
	p	0.762

**rho = Spearman's correlation coefficient*

3.5. Relationship Between Emotional Eating, Stress Eating, Parental Nurturance, and Perceived Stress

3.5.1. Parental Nurturance and Perceived Stress

A multiple linear regression analysis was conducted to examine if parental nurturance can be a predictor for perceived stress subscales (see table 25). The results indicate that neither maternal nor paternal nurturance can significantly predict medical student's perceived stress ($p>0.005$). The regression model explained between 0.2% and 5.2% of the variance in different perceived stress subscales, with the biggest R^2 being for group activities related stressors ($R^2=0.052$). The other models revealed low explanatory power (R^2 ranging from 0.002 to 0.026).

Table 25. Multiple linear regression: Parental nurturance as predictor for perceived stress categories (N=113)

MSSQ/PNS	**Mother**				**Father**			
	B	**Beta**	**p**	**VIF**	**B**	**Beta**	**p**	**VIF**
Academic related stressors	-0.01	-0.13	0.245	1.36	0.01	0.19	0.092	1.36
Interpersonal & Intrapersonal related stressors	-0.01	-0.12	0.282	1.36	0.01	-0.17	0.122	1.36
Teaching & Learning related stressors	0.00	0.01	0.948	1.35	0.00	-0.05	0.666	1.35
Social related stressors	0.00	-0.10	0.361	1.36	0.00	-0.09	0.415	1.36
Drive & Desire related stressors	-0.01	-0.12	0.278	1.36	0.00	0.01	0.906	1.36
Group Activities related stressors	-0.01	-0.12	0.279	1.36	-0.01	-0.15	0.180	1.36

**B=unstandardized coefficient, Beta=standardized coefficient, VIF=variance inflation factor*

3.5.2. Predictors for Emotional and Stress Eating. Bivariate Analysis

A bivariate logistic regression analysis was performed to identify potential factors that may predict stress eating and emotional eating behaviour. For predictive factors perceived stress subscales

(Academic related stressors, Interpersonal and Intrapersonal related stressors, Teaching and Learning related stressors, Social related stressors, Drive and Desire related stressors, Group Activities related stressors) and parental nurturance (both maternal and paternal) were used. Categorical variables stress and emotional eating (happiness, sadness, anxiety, anger) were dichotomised to ''eats the same or less than usual'' and ''eats more than usual'' to fit the criteria for logistic regression.

The bivariate regression analysis revealed the factors that significantly predicted emotional eating behaviour when anxious were: academic related stressors (OR=2.29, p=0.021), Interpersonal & Intrapersonal related stressors (OR=2.40, p=0.004), teaching & learning related stressors (OR=1.20, p=0.019), social related stressors (OR=2.40. p=0.015), drive & desire related stressors (OR=1.75, p=0.031). Group Activities related stressors, paternal and maternal nurturance did not reach statistical significance (p>0.05) (see table 26).

Table 26. Bivariate logistic regression: predictors for emotional eating anxiety category (N=113)

Predictor	OR	p
Academic related stressors	2.29	**0.021**
Interpersonal & Intrapersonal related stressors	2.40	**0.004**
Teaching & Learning related stressors	1.20	**0.019**
Social related stressors	2.40	**0.015**
Drive & Desire related stressors	1.75	**0.031**
Group Activities related stressors	1.48	0.103
Maternal nurturance	0.99	0.171
Paternal nurturance	1.00	0.644

**OR=odds ratio, significant values are bolded*

Social related stressors were found to be the only statistically significant predictor for happiness related eating behaviour (OR=2.02, p=0.031) (see table 27). For anger related emotional eating, social related stressors reached marginal significance (OR=1.99, p=0.053), all other factors were not significant predictors (see table 28). For variables stress and sadness related eating none of the factors were found to be statistically significant predictors (see tables 29 and 30), thus they were not included in the multivariate model.

Table 27. Bivariate logistic regression: predictors for emotional eating happiness category (N=113)

Predictor	OR	p
Academic related stressors	1.66	0.109
Interpersonal & Intrapersonal related stressors	1.42	0.144
Teaching & Learning related stressors	1.52	0.107
Social related stressors	2.02	**0.031**
Drive & Desire related stressors	1.01	0.965
Group Activities related stressors	0.85	0.463
Maternal nurturance	0.99	0.513
Paternal nurturance	1.01	0.405

**OR=odds ratio, significant p values are bolded*

Table 28. Bivariate logistic regression: predictors for emotional eating anger category (N=113)

Predictor	OR	p
Academic related stressors	1.15	0.671
Interpersonal & Intrapersonal related stressors	1.00	1.000
Teaching & Learning related stressors	1.23	0.371
Social related stressors	1.99	**0.053**
Drive & Desire related stressors	1.24	0.410
Group Activities related stressors	1.14	0.577
Maternal nurturance	0.98	0.153
Paternal nurturance	1.00	0.936

**OR=odds ratio, significant p values are bolded*

Table 29. Bivariate logistic regression: predictors for stress eating (N=113)

Predictor	OR	p
Academic related stressors	1.02	0.960
Interpersonal & Intrapersonal related stressors	1.21	0.420
Teaching & Learning related stressors	1.40	0.202
Social related stressors	0.96	0.887
Drive & Desire related stressors	1.30	0.291
Group Activities related stressors	1.17	0.493
Maternal nurturance	1.00	0.630
Paternal nurturance	0.99	0.380

**OR=odds ratio*

Table 30. Bivariate logistic regression: predictors for emotional eating sadness category (N=113)

Predictor	OR	p
Academic related stressors	1.30	0.329
Interpersonal & Intrapersonal related stressors	1.30	0.220
Teaching & Learning related stressors	1.10	0.775
Social related stressors	1.51	0.142
Drive & Desire related stressors	0.91	0.652
Group Activities related stressors	0.97	0.882
Maternal nurturance	0.99	0.272
Paternal nurturance	1.00	0.455

**OR=odds ratio*

3.5.3. Predictors for Emotional and Stress Eating. Multivariate Analysis.

A multivariate logistic regression analysis was done to investigate if academic related stressors, interpersonal and intrapersonal related stressors, teaching and learning related stressors, social-related stressors, drive and desire related stressors, group activities related stressors, and parental nurturance (maternal and paternal) independently predicted the likelihood of medical students reporting consuming more food than usual when feeling happy (see table 31). The results showed that the overall model was not significant (p=0.084), explaining 16.7% of the variance,

meaning that the aforementioned factors did not significantly predict happiness related eating behaviour in this sample.

Individually, none of the predictors reached significance (p>0.005), however, group activities related stressors approached significance (B=-0.55, OR=0.58, p=0.069). These findings suggest that higher perceived stress in group related activities might be associated with lower odds of eating more food when feeling happy.

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Table 31. Multivariate logistic regression: predictors for emotional eating happiness category (N=113)

Predictor	OR	p	95% CI
Academic related stressors	0.78	0.674	0.25-2.48
Interpersonal & Intrapersonal related stressors	1.29	0.399	0.71-2.35
Teaching & Learning related stressors	1.95	0.150	0.79-4.85
Social related stressors	2.18	0.090	0.89-5.34
Drive & Desire related stressors	0.67	0.210	0.36-1.25
Group Activities related stressors	0.58	0.069	0.32-1.04
Maternal nurturance	0.98	0.136	0.95-1.01
Paternal nurturance	1.02	0.257	0.99-1.04

**OR=odds ratio, CI=confidence interval*

Another multivariate logistic regression analysis was conducted to find out if academic-related stressors, interpersonal and intrapersonal-related stressors, teaching and learning-related stressors, social-related stressors, drive and desire-related stressors, group activities-related stressors, and parental nurturance (maternal and paternal) independently predicted the likelihood of medical students reporting consuming more food than usual, compared to eating the same or less than usual when feeling anxious (see table 32). The overall model was not statistically significant (p=0.061) and only explained 18.6% (Nagelkerke R^2) of the variance, implying it did not significantly differentiate between the two groups.

Table 32. Multivariate logistic regression: predictors for emotional eating anxiety category (N=113)

Predictor	OR	p	95% CI
Academic related stressors	1.01	0.982	0.30-3.40
Interpersonal & Intrapersonal related stressors	2.02	**0.042**	1.02-3.99
Teaching & Learning related stressors	1.36	0.540	0.51-3.61
Social related stressors	1.32	0.576	0.50-3.51
Drive & Desire related stressors	1.18	0.622	0.62-2.25
Group Activities related stressors	0.93	0.822	0.51-1.71
Maternal nurturance	0.99	0.342	0.96-1.02
Paternal nurturance	1.00	0.938	0.97-1.03

**OR=odds ratio, CI=confidence interval, significant values are bolded*

Out of all of the predictors only interpersonal and intrapersonal related stressors significantly predict anxiety related eating behaviour (B=0.70, OR=2.02, p=0.042). This indicates that for one unit increase of interpersonal and intrapersonal related stressors, the probability of eating more than usual when feeling anxious becomes 2.02 points higher. The other predictors: academic related stressors (p=0.982), teaching & learning related stressors (p=0.540), social related stressors (p=0.576), drive & desire related stressors (p=0.622), group activities related stressors (p=0.822), maternal nurturance (p=0.342), and paternal nurturance (p=0.938) did not significantly predict increased food consumption when anxious in this sample.

Lastly, a third multivariate logistic regression analysis was performed to find out if academic-related stressors, interpersonal and intrapersonal-related stressors, teaching and learning-related stressors, social-related stressors, drive and desire-related stressors, group activities-related stressors, and parental nurturance (maternal and paternal) independently predicted the likelihood of medical students reporting consuming more food than usual compared to eating the same or less than usual when feeling angry (see table 33) as it had marginal significance (p=0.053) in the univariate model. The overall model was not statistically significant (p=0.275) and only explained 12.9% of the variance suggesting that the two groups (eating the same or less than usual and eating more than usual) did not differentiate in this sample.

Table 33. Multivariate logistic regression: predictors for emotional eating anger category (N=113)

Predictor	OR	p	95% CI
Academic related stressors	0.46	0.224	0.13-1.61
Interpersonal & Intrapersonal related stressors	0.75	0.386	0.39-1.44
Teaching & Learning related stressors	1.41	0.490	0.53-3.77
Social related stressors	3.15	**0.026**	1.15-8.65
Drive & Desire related stressors	0.89	0.732	0.45-1.76
Group Activities related stressors	1.07	0.835	0.58-1.97
Maternal nurturance	0.98	0.105	0.95-1.01
Paternal nurturance	1.02	0.203	0.99-1.05

**OR=odds ratio, CI=confidence interval, significant p values are bolded*

When adjusted for other predictors, social related stressors reached statistical significance (B=1.15, OR=3.15, p=0.026). This indicates that for each unit of increase in the social related stressors category, the likelihood of consuming more food than usual compared to the same or less than usual when feeling angry increases 3.15 times. The other predictors: academic related stressors (p=0.224), interpersonal & intrapersonal related stressors (p=0.386), teaching & learning related stressors (p=0.490), drive & desire related stressors (p=0.732), group activities related stressors (p=0.835), maternal nurturance (p=0.105), and paternal nurturance (p=0.203) did not significantly predict increased food consumption when angry in this sample.

4. Discussion

4.1. Summary of Study Results

The aim of this study was to investigate the relationship among perceived stress, parental nurturance, stress and emotional eating in II and III-year Lithuanian medical student sample. Specifically, to explore if different types of stressors, motherly and fatherly nurturance can be predictive factors for altered food consumption when feeling happy, sad, angry, anxious, stressed. The objectives were: 1) to evaluate emotional eating behaviour in medical student sample, 2) to analyse stress eating behaviour in medical student sample, 3) to evaluate stress that medical students experience, 4) to examine medical student's parental nurturing, 5) to investigate the relationship between emotional eating, stress eating, parental nurturance, and perceived stress. In order to assess these factors, questionnaires were sent out electronically to collect information on medical students' levels of perceived stress, emotional and stress eating behaviour, how nurturing their parents are. Demographic information (gender, age, year of study, location of studies, living with parents or not, weight, height) was also collected the same way.

The results revealed that medical students had a tendency of consuming less food than usual when feeling negative emotions (stress, anger, anxiety), and eating as much as usual when feeling happy. The trend of responses was similar across all genders and ages. Even though a clear trend of lower food consumption when feeling negative emotions was observed, the participant's food consumption was positively correlated with higher body mass index category when feeling sad, angry, or anxious. Similarly, when it came to stress eating, majority of participants reported consuming less food when feeling stressed - females, males, and others alike.

Further analysis indicated that students who were underweight also were consuming little to no food when feeling stressed. For the perceived stress subscales – results indicated that academic related stressors to be the most stressful. In line with this, results further indicated that students experienced higher levels of stress from teaching and learning, and social related stressors when they experienced higher levels of academic related stressors. Similarly, participants who experienced less stress from teaching and learning also experience less stress in drive and desire, group activities, and social categories. Overall female students reported higher levels of perceived stress than those reported by male students. Furthermore, results obtained display no association between levels of perceived stress and age, implying that students of all ages undergo a similarly experience in terms of stress.

Moreover, analysis of the parental nurturance scales highlighted that participants in this sample see their parents as nurturing which is supportive. Age and gender were not associated with how students regard their mothers and fathers in this category. Further analysis was conducted to find

out if parental nurturance and perceived stress could be predictors for emotional and stress eating behaviour. In the univariate model anxiousness related eating was found to increase when academic related, interpersonal and intrapersonal, teaching and learning, social related, drive and desire stressor scores were increased. In the same way, study participants who experienced more social related stress reported increased food consumption, eating more food than usual, when feeling angry or happy. The multivariate model revealed that consuming more food when feeling anxious was predicted by interpersonal and intrapersonal stressors. Similarly, greater food consumption when feeling angry was predicted by social related stressors.

4.2. Interpretation of Results and Comparison with Previous Research

4.2.1. Perceived Stress and Parental Nurturance

The results of this study indicated that medical students in this sample sufficiently evaluated their levels of perceived stress across all subscales. Hence, students who reported higher levels of perceived stress in one category also reported elevated levels of stress in others. The biggest stressor for this sample was academic related stressors. These findings support the results of a study by Saipanish (2003) with Thai medical students, who similarly highlighted academia as one of the main causes for stress in the sample. Furthermore, female students of this sample reported experiencing higher levels of stress than their peers in academic related, interpersonal and intrapersonal, social related stressor categories. These results reiterate the findings of Graves et al. (2021) who investigated gender differences in stress perception. As seen in in the current study, Graves et al. (2021) found that female students are more susceptible to experiencing stress than their peers. Although age did not play a role in stress perception in the current study, Ludwig, et al. (2015) found that II and III-year medical students experience higher levels of stress as they progress through medical school.

Overall, medical students in this sample indicated receiving above average parental nurturance from both mothers and fathers. Literature indicates that higher parental nurturance is associated with lower levels of stress in young adults (Donnelly, et al., 2013). Parental support is crucial at this point in their lives as emerging adults are gaining more autonomy and having to make choices on their own. Naturally, not having nurturing parents is likely to result in higher levels of stress. However, the current study cannot support findings from Donnelly, et al., (2013) as in this sample neither motherly nor fatherly nurturance had an association with perceived stress. Furthermore, it is difficult to compare the findings of the current study as previous research on how parental nurturance can associated with perceived stress in young adults is very limited as the majority of the literature focuses on parental nurturance's (or lack there of) affects on young children.

4.2.2. Emotional and Stress eating

In the current study emotional eating was assessed by levels of food consumption when feeling happy, sad, angry, and anxious. Overall, medical students in this sample reported that they consume the same amount of food when feeling happy, eating more than usual when feeling sad, and eating slightly less when feeling anxious or angry. Participants in this study who reported eating more when experiencing one emotion also reported eating more when feeling others. Moreover, results indicate that medical students from this sample opted to either eat more or less food than usual when feeling negative emotions such as sadness, anxiety, anger. However, Food consumption did not fluctuate when feeling happy. This suggests that participants in this study can be described as emotional eaters (Adriaanse, et al., 2009). This can be a problematic behaviour as according to Adriaanse, et al. (2009) emotional eaters have higher BMI which is associated with obesity. The current study supports the findings from Adriaanse, et al. (2009) as medical students who reported consuming more food when feeling anxious or sad fit into the overweight and obese categories respectively.

Another eating behaviour studied in this paper is stress eating. Similar to emotional eating, the majority of participants reported eating less food when feeling stressed (65.5%), followed by eating more food when stressed (26.5%). Moreover, stress eating behaviour corresponds with medical students' BMIs – students who fall into obese and overweight BMI categories reportedly consume more food when stressed, students in the underweight BMI category reportedly consume lesser food when stressed. These findings reiterate the afore mentioned description of the participants as emotional eaters. Findings from this study support the findings by Meule et al. (2017) who also found a correlation between stress eating behaviours and BMI. This eating behaviour can be extremely problematic as students usually opt for unhealthy foods high in sugar and fat when stressed and long term it may cause obesity (Choi, 2020). Furthermore, stress eating is often used a coping mechanism to help deal with prolonged stress. This makes the medical student population very vulnerable as they are susceptible to higher levels of stress than their peers (Shah, Q. A., et al., 2024) and hence, further susceptible to being overweight, underweight or malnourished

4.2.3. Emotional and Stress Eating and Parental Nurturance

The unique focus of the current study was to investigate the relationship of maternal and paternal nurturance and stress and emotional eating behaviours in medical students. We aimed to understand if parental nurturance could affect and influence eating behaviours in young adults, since this a well studied phenomenon in children. This can be seen in previous research with children, which suggests that low parental nurturance leads to emotional and stress eating which in turn, may lead to childhood obesity and disordered eating (Gahagan, 2012). The current study with young-adult participants, however, found no such trend. Data from the medical students in this study reported that

their eating behaviours, whether it may be higher or lower food consumption, could not be predicted by levels of parental nurturance, maternal or paternal. These findings hence suggest that parental nurturance cannot significantly predict eating behaviours however, in analysed medical students sample, the impact of parental nurturance cannot be discounted. The literature discussed earlier suggests that young adults rely on their parents for nurturance and emotional support, and feeling a lack of such nurturance and support may facilitate elevated levels of perceived stress, which in turn, is associated with over or under eating (El-Behadli, et al., 2015). Following this trend, one may accept that parental nurturance might *affect* eating behaviours but it may not *predict* them.

4.2.4. Happiness, Anxiety, Anger and Perceived stress

Another goal of this study was to investigate if emotional eating can be predicted by perceived stress. Interestingly, the findings indicated that not all types of stressors can predict emotional eating behaviour. Not all emotional eating behaviour could be predicted by perceived stress. For the participants of this study, only anger and anxiety related eating were predicted by perceived stress. What is particularly notable, is that anxiety related eating behaviour can be predicted by interpersonal and intrapersonal related stressors, and anger related eating behaviour can be predicted by social related stressors. These findings coincide with Yusoff, et al. (2010) interpretation of each of the stressors. Yusoff, et al. (2010) state that interpersonal related stressors refer to motivation, self-conflict, relationship with oneself, and intrapersonal related stressors refer to relationships with staff, colleagues, lecturers, any type of conflict or abuse. It can be argued that these life events can cause anxiety levels to rise thus reinforcing the results of this study that higher levels of interpersonal and intrapersonal related stress can predict higher food consumption when feeling anxious. Yusoff, et al. (2010) describes social related stressors as all types of social situations, personal and professional; reporting higher stress levels in this area is indirectly associated with having difficulties spending time in social activities. Literature cites that an inability to manage social situations to one's satisfaction often leads to feelings of anger (Van Kleef, et al., 2008). This further supports the findings of the current study as perceiving social situations as stressful can lead to feeling angry, which in turn alters eating behaviour, therefore social related stressors can predict increased food consumption when feeling angry.

4.3. Advantages, Limitations and Recommendations

Advantages

This study contributed to understanding the associations among parental nurturance, perceived stress, emotional and stress eating behaviour in Lithuanian II and III-year medical students. Although this population is highly analysed, this study offers a unique and comprehensive approach incorporating, to the best of our knowledge, factors that have not been analysed together in the context

of each other before: i.e., parental nurturance and perceived stress, as potential predictors for emotional and stress eating behaviours. The results claim social related stressors and interpersonal and intrapersonal related stressors are predictors for anger and anxiety related eating behaviour in Lithuanian II and III-year medical student population. Moreover, the results of this study showed that parental nurturance was not a predictive factor of eating behaviours in this sample, nor was having nurturing parents was associated with lower levels of perceived stress.

Limitations

Alongside the advantages this study, like most, had limitations. The first and foremost was a lower than anticipated response rate. Less than a third of targeted participants took part in the study, thus potentially skewing the study results. Due to the low response rate it is difficult to determine if the results sufficiently represent the whole population. Potential survey fatigue may have played a part in the incomplete responses recorded, since participants were asked to answer a large volume of questions. With the same set of questions for both maternal and paternal nurturance, the repetitiveness of which might have also resulted in the low response rate.

Recommendations

It has become clear that the medical student population experience higher levels of stress when compared to their peers in different fields. It is also apparent that students often do not cope with that stress in a healthy way resulting in emotional eating and changes in BMI. It is essential to tailor interventions such as psychoeducation and to provide resources to allow these students to manage stress via healthier methods.. Moreover, it is important to educate the medical student population on emotional and stress eating behaviour, and its long term health effects. Quite importantly, since academic related stressors were found to be one of the main sources for stress, universities have an excellent opportunity to initiate a novel, helpful change in the way medical courses are taught and managed. Implementation if mindfulness programmes such as the Mindful Stress Management and Mindful Stress Management- Informal alongside other have reported varying levels of success in reducing student stress in universities. (Hindman, et al., 2015; Regehr, et al., 2013). Efforts on educating university staff and providing relevant resources may also be helpful in alleviating academic pressure.

Further studies on II and III-year Lithuanians medical students are needed in order to analyse the associations among perceived stress, parental nurturance, and eating behaviours as a greater sample size can represent the entire population more wholesomely. Moreover, a deeper analysis of perceived stress and emotional eating behaviours is needed to better understand the causes of specific types of stressors and their connection to specific emotions and associated eating behaviour. This

would allow for targeted interventions to be implemented to protect the II and III-year medical student population from developing disordered eating behaviour, as well as to educated students on how to cope with negative emotions when they arise in a healthy way.

Conclusions

1. Emotional eating behaviour in II and III-year Lithuanian medical student population varied across categories. Majority of the respondents (57.5%) stated eating the same as usual when feeling happy, 50.5% reported consuming more food than usual when feeling sad, 68.2% and 61.1% reported eating less than usual when feeling anxious and angry respectively. Anxiety related emotional eating behaviour differed significantly across BMI categories (p=0.029).

2. II and III-year Lithuanian medical students reported that their eating behaviour changes when feeling stressed. More than half of the participants (65.5%) reported consuming smaller amount of food than usual when feeling stressed, followed by 26.5% of participants who reported eating more than usual when stressed, and only 8% of individuals indicated that they eat the same amount as usual when stressed. Stress eating behaviour varied significantly across BMI categories (underweight, normal weight, overweight, obese) (p=0.002), greater food consumption was positively associated with higher BMI category.

3. II and III-year Lithuanian medical students reported that academic related stressors were perceived as the most stressful (M=3.8, SD=0.70). Results indicated that there was a significant difference of perceived stress among genders in these categories: academic related stressors (p=0.024), interpersonal and intrapersonal related stressors (p=0.009), and social related stressors (p=0.042). Female students reported significantly higher levels of stress when compared to their male peers in academic related stressors category (p=0.026), interpersonal and intrapersonal related stressors (p=0.001), social related stressors (p=0.010).

4. II and III-year Lithuanian medical students' perception on how nurturing are their parents was analysed. Results showed that motherly nurturance had mean score of 97.1 (SD=19.54) and fatherly nurturance 87.8 (SD=23.22) indicating an above average nurturance scores for both parents. No differences among gender or age in parental nurturance were observed.

5. The relationship between emotional eating, stress eating, parental nurturance, and perceived stress in the II and III-year Lithuanian medical student population was assessed. It was found that interpersonal and intrapersonal related stressors significantly predict anxiety related eating behaviour (B=0.70, OR=2.02, p=0.042) which means that when perceived stress increased anxiety related food consumption increased. Social related stressors significantly predicted anger related eating (B=1.15, OR=3.15, p=0.026), meaning that when perceived stress due to social related stressors increased,

anger related food consumption also increased. Parental nurturance, academic related stressors, teaching and learning related stressors, drive and desire related stressors, group activities related stressors did not significantly predict happiness, sadness or stress related eating behaviour. The hypothesis was partially confirmed – some of the perceived stress subscales (interpersonal and intrapersonal stressors, social related stressors) were positively associated with some emotional eating behaviour (anxiety related and anger related eating).

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