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Stress Management Methods, And Their Effectiveness Amongst Nursing Students

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Nursing science articles have indicated that clinical practice and academic schoolwork triggers stress amongst nursing students. The causes of stress and stress management methods vary and are not educated or publicly known to nursing students. The amount of data on this subject is limited, that is why a literature review to expand the knowledge is needed to make it more accessible. Thus, the purpose of this thesis is to describe knowledge on causes of stress and stress management methods of nursing students. The aim of the thesis is to produce knowledge for nursing students on stress management methods, causes of stress and how nursing students apply the knowledge for selfcare.

The data was obtained from reliable databases such as CINAHL, Medline and PubMed. The data generated in total was 798 articles which were obtained through keyword searches on the databases. Based on our inclusion and exclusion criteria thirteen articles were chosen as data for this thesis. An inductive content analysis was done by applying principles of qualitative research and a content analysis table was used to categorize the information gathered. A content analysis table was developed for both research questions which were 'causes of stress for nursing students' and 'what methods are nursing students using to cope with stress'. Data was analyzed by organizing the original phrases with four steps: simplified, grouped, sub-categorized, and upper-categorized.

The results indicate that there are four upper categories which are the causes of stress amongst nursing students. These include: Sociodemographic factors, personal indications, geodemographic and socioeconomic factors. Sociodemographic factors which caused stress amongst nursing students were the age of the student, the marital status of the student, cultural differences and sex of the student. Personal indications which caused stress included perceived notions of clinical practice and organizational skills of students. Geodemographic stress factors included travel time between home, clinical practice and school. Socioeconomic factors included education level of the student, school/ work status, student family dynamics and economic factors.

The results also found that the most common methods in which nursing students coped with stress fell into three upper categories. These included use of social support, financial support, and self-care. Methods in which students cope with stress regarding social support included the use of their social circle, and financial support included wealth through socioeconomic status of the student's family and self-care included stress management methods and methods to help mental health of the students.

Findings of this thesis suggest that there is abundant information on the self-care methods of stress management amongst nursing students. This indicates that nursing students are motivated for self-care during their studies to cope with their stress. Further studies should investigate the use of social support networks to cope with stress and how the socioeconomic status of students and their families influence the stress levels of the student. Nursing students are able to gain key knowledge on the causes of stress from this thesis. By understanding the causes of stress nursing students can identify the stress triggers and obtain a deeper understanding. Doing this will allow students to develop effective stress management methods as an indication for self-care on an individualistic level.

Keywords: Nursing students, stress management, stress.

Tekijä(t) Otsikko Sivumäärä Aika	Joel Knuutinen & Ben Gran Stressinhallintamenetelmät, niiden tehokkuus sairaanhoitajaopiskelijoiden keskuudessa 25 sivua + 1 Liite 4 Marraskuuta 2020
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Hoitotieteen alan artikkelit ovat osoittaneet, että kliiniset harjoittelut ja sairaanhoitajaopinnot aiheuttavat stressiä sairaanhoitajaopiskelijoiden keskuudessa. Stressin syyt sekä erilaiset stressinhallintamenetelmät vaihtelevat, niitä ei opeteta tai niistä ei ole sairaanhoitajaopiskelijoille julkista tietoa tarjolla. Tätä aihetta koskeva tiedon määrän on rajallinen, siksi on paitsi tarpeellista myös hyödyllistä saada koottua aiheesta kirjallisuuskatsaus, joka olisi helposti saatavilla. Siten tämän opinnäytetyön tarkoitus on kuvata sairaanhoitajaopiskelijoiden stressin syitä ja opiskelijoiden stressin kriteerit. Opinnäytetyön tavoite on tuottaa tietoa sairaanhoitajaopiskelijoille erilaisista stressinhallintamenetelmistä, stressin syistä ja miten sairaanhoitajaopiskelijat voivat käyttää tietoa itsehoidossa.

Aineisto haettiin luotettavista tietokannoista, kuten CINAHL, Medline ja PubMed. Haku tuotti yhteensä 798 artikkelia, jotka saatiin tietokannoista avainhaku -sanoilla. Näistä opinnäytetyön aineistoksi valittiin 13 artikkelia, perusteina sisältö- ja poissulkemismenetelmät. Induktiivinen sisältöanalyysi tehtiin soveltamalla kvalitatiivisen tutkimuksen periaatteita ja haettu tieto luokiteltiin sisältöanalyysitaulukon avulla. Sisältöanalyysitaulukko tehtiin molemmille tutkimuskysymyksillemme; jotka olivat 'sairaanhoitajaopiskelijoiden stressin syyt' sekä 'mitä menetelmiä sairaanhoitajaopiskelijat käyttävät stressinhallintaan'. Tieto analysoitiin neljässä vaiheessa analyysiyksikön mukaiset ilmaukset pelkistettiin, sitten ryhmiteltiin ja sitten nimettiin alaluokka ja lopuksi yläluokka.

Tulokset osoittavat, että sairaanhoitajaopiskelijoiden keskuudessa on 4 ylemmää luokkaa, jotka aiheuttavat stressiä. Näihin kuuluvat; sosiodemografiset tekijät, henkilökohtaiset ajatukset, maantieteellinen sijainti ja sosioekonomiset tekijät. Sosiodemografiset tekijät, jotka aiheuttivat stressiä sairaanhoitajaopiskelijoiden keskuudessa olivat opiskelijan ikä, siviilisääty, kulttuurieroavaisuudet ja sukupuoli. Stressiä aiheuttavat henkilökohtaiset ajatukset sisälsivät ennakoasenteita kliinisen harjoittelun ja opiskelijoiden organisaatiokykyjen osalta. Maantieteellisen sijainnin aiheuttamia stressitekijöitä olivat matkustusaika kotiin, kliinisen harjoittelun ja koulun välillä. Sosioekonomiset stressitekijät olivat opiskelijan koulutustaso, koulu-/työtilat, opiskelijan perheen dynamiikka ja taloudelliset tekijät. Tulokset osoittivat myös, että sairaanhoitajaopiskelijoiden käyttämät yleisimmät stressinhallintamenetelmät ja kaantuivat kolmeen ylempään luokkaan. Näitä olivat: sosiaalinen tuki, taloudellinen tuki ja itsehoito. Menetelmät, jotka sisältyvät sosiaaliseen tukeen ovat sosiaalisen piirin hyödyntäminen, taloudellinen tuki sisälsi varallisuuden opiskelijan perheen sosioekonomisen statuksen myötä ja itsehoito sisälsi stressinhallintamenetelmiä ja menetelmiä auttamaan opiskelijoiden mielenterveyteen. Tämän opinnäytetyön tulokset osoittavat, että sairaanhoitajaopiskelijoiden stressinhallinnan itsehoitomenetelmistä on runsaasti tietoa. Tämä osoittaa, että sairaanhoitajaopiskelijat ovat motivoituneita itsehoitoon opintojensa aikana, selviytyäkseen stressistään.

Lisätutkimusta tulisi tehdä sosiaalisten tukiverkoston käytöstä stressinhallintaan ja siitä, miten opiskelijaperheiden varallisuus ja sosioekonominen tila vaikuttivat suoraan opiskelijoiden stressitasoon. Sairaanhoitajaopiskelijat voivat saada tästä opinnäytteestä avaintietoja stressin syistä. Ymmärtämällä, mistä stressi tulee, sairaanhoitajaopiskelijat voivat tunnistaa stressin aiheuttajat ja saada syvempää ymmärrystä. Tämän tekeminen antaa opiskelijoille mahdollisuuden kehittää tehokkaita stressinhallintamenetelmiä merkinä itsehoidolle yksilötasolla.

Avainsanat: Sairaanhoitajaopiskelija, stressinhallintamenetelmät, stressi

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1 Introduction

The Subject of this thesis is Stress management methods, their effectiveness amongst nursing students and motivation for self-care. This paramount subject is of interest as nursing students suffer from great levels of stress related to academic assignments and clinical skills training. (Shdaifat, Jamama & Al-Amer 2018, pp. 33-34) The amount of data on this subject is limited, that's why a literature review is needed to expand the knowledge to make it more accessible for nursing students. Nursing students' studies are a long process almost four years in Finland. During those four years students go to multiple clinical practices and have many examinations. Data shows that students suffer from stress during these periods and it's important to gather data on why this is and what methods are students using to cope with stress if none. (Ganzer & Zauderer 2013, p. 246)

Stress management strategies is describing as "A broad variety of environmental, personal, and interpersonal interventions that can be deployed by professional health workers and others to identify the sources of and reduce stress levels, and to enhance the body's efficiency in coping with stress" (Last 2007).

This thesis will gather data on various methods of stress relief, motivation of self-care, and preferred methods of stress relief amongst nursing students. Studies provided within the literature review states that methods of stress management need to be reviewed and improved amongst nursing students. (Essel & Owusu 2017, p.8-9; Senturk & Dogan 2018, p.903)

Many articles have been published about student stress management, but more specific information is difficult to identify and is dispersed. This thesis will gather available information and publish a document that provides an applicable, relatable and informative report in the form of a thesis

The purpose of this thesis is to describe knowledge on causes of stress and stress management methods of nursing students. The methods of gathering literature used databases found electronically such as CINAHL, Medline and PubMed. These sources were used to grasp insight of the topic before commencing the thesis. There is a moderate

number of studies related to this topic. Our method of research is a descriptive literature review.

This thesis is done in co-operation with Metropolia University of applied sciences project that aims to develop nursing education and commitment to healthy behaviours of studying and nursing in Metropolia students.

2 Key Concepts

2.1 Stress

Shiel (2018) defines stress as a “physical, mental, or emotional factor that causes bodily or mental tension. Stress can be external or internal”. When your body perceives stress mentally or physically, cortisol is released by the adrenal glands. Increased cortisol into the blood stream can increase heart rate, and blood pressure. If stress and cortisol levels are elevated for longer periods of time, negative health consequences can occur such as increased blood sugar levels, weight gain, suppressed immune system, digestion problems and heart disease. Stress can also lead to or be caused by other aspects such as burnout, fear, distress, worry or anxiety. (Essel & Owusu 2017, pp. 16-20)

2.2 Well-being

According to Segen's Medical Dictionary (2012) wellbeing is defines as “A state of health, happiness and prosperity, which is affected by various factors, including: a balanced diet, regular exercise, supportive relationships, adequate financial resources, stimulating work, education and leisure activity, health monitoring, preventative services, and risk management to protect individuals and promote personal safety.”

2.3 Self-care

World Health Organization's working definition of self-care (2013) is “The ability of individuals, families and communities to promote health, prevent disease, maintain health, and cope with illness and disability with or without the support of a health-care provider”. Self-care include positive stress management methods such as leisure time, physical activity and optimism. Leisure activity can be described as simple activity which frees

students from work and obligations (Unger & Kernan 1983). Physical activity has been found to have several benefits to mental health. Optimism is defined as “positive feelings, high morale, determination and effective problem solving, academic and professional success, being popular, healthy long life, and adopting positive attitudes to overcome trauma and turning them into behaviors” (Peterson cited in Kumcagiz, Celic, Yilmaz & Eren 2011, p. 973).

2.4 Nursing

According to EU-terveydenhoito sanasto (2020) nursing is defined as actions taken by health care professionals or within the health care unit to determine the condition of a patient or to restore or maintain his or her state of health. The field of nursing focuses on the care of individuals, families and communities with the goal of recovering optimal health of patients and improving the quality of life of society as a whole. It is a specialised occupation in the health sector which works with multidisciplinary teams with the singular goal of promoting health.

2.5 Nursing student

According to Dictionary.com a nursing student is “a person who is training to be a nurse at a nursing school or hospital” (2020). Nursing students in Finland can get their education in universities of applied sciences for a period of 3.5 years (Finnish Association of Nurses 2020). After completing their studies in nursing, graduates of the bachelor’s degree programme of nursing can apply for registration at the National Supervisory Authority for Welfare and Health (Valvira) which grants the right to practice as a licenced registered nurse as required by Finnish Law (Health care professionals Act 559/1994 section 5, Valvira).

3 Earlier studies

As digitalization and culture change over time, the causes of stress and coping methods of nursing students also adapt. It is clear that the cumulative stress from many years of studying becomes an obstacle and the student's studies will suffer from that (Marshall,

Allison, Nykamp & Lankea 2008, pp. 1-8). Indeed, stress in nursing studies is inevitable making it a common phenomenon and challenge that needs to be investigated.

The causes of stress for nursing students arise from different aspects of their lives including; personal life stressors, school related stress and stress from clinical practice. (Chan, So & Fong 2009, pp. 307-309; Junious, Malecha, Tart & Young 2010, pp. 261-265; Shaban, Khater & Akhu-Zaheya 2012, p. 207.)

The most common personal stressors that were found amongst nursing students included issues related to finances, family, and personal relationships. (Junious 2010, pp. 264-267.) Whereas school related stress arouse from stress from examination, scheduling, outside of class assignments and workload, stress caused by teaching staff and peers. (Chan et al. 2009, p. 309; Junious et al. 2010, p. 276; Shaban et al. 2012, p. 207.)

Regarding stress related to clinical practice, a study conducted in Hong Kong among baccalaureate Nursing Students during clinical practice found that the biggest contributors to stress to be; a lack of professional knowledge and skills, unfamiliarity with medical terminology with patient history, diagnosis and treatment methods. (Chan et al. 2009, p. 309.) A similar study (Shaban et al. 2012, p. 207) which examined students stress sources during initial periods of clinical training found the similar results but also stressors related to the hospital environment, nursing staff, and taking care of patients.

In addition, foreign born nursing students have the same sources of stress and more. Foreign born nursing students may have problems with language studies, communication, discrimination, stereotyping and cultural incompetence (Junious et al. 2009, p. 266).

There are both positive and negative methods in which students have coped with their stress. Positive coping mechanisms are healthy lifestyle choice which support the students health and wellbeing, whereas negative coping mechanisms are associated to reckless and risky behaviour which induces the overall wellbeing of the students. (Chan et al. 2009, p. 310; Jordan 2014, p. 2; Lovallo 2006; Murdock, Naber, & Perlow 2010, p. 8; Unger et al. 1983.)

A study by Chan et al. (2009 p. 310) found that the most persistantly used coping methods were transference such as watching movies or TV, sleep, physical activity or having

a shower. Second most frequent coping methods to stress management included, staying optimistic, problem solving, and avoidance. Whereas Murdock, et al. (2010, p. 8) conducted a study with 95 nursing students, which found that the ways that they managed their stress was through listening to music, exercise, drinking alcohol, socializing, eating, meditation and smoking. It is apparent that nursing students often cope with stress in similar ways when no intervention is applied.

Positive coping mechanisms used by nursing students can be categorized into, Leisure time, physical activity, and optimism. Leisure activity can be described as simple activity which frees students from work and obligations. (Unger et al. 1983.) This includes activities such as rest, entertainment, socializing, eating and meditating. Leisure can be used as a coping mechanism for all people, but the importance of learning this behavior as emerging students can mean the difference between sickness and good health. (Jordan 2014, pp. 31-46.)

Physical activity is planned activities of exercise which are aimed to increase the heart rate, resistance training or activities which enhance and activate mobility. These include activities such as jogging, swimming, weight training or yoga and stretching. Physical activity has been found to have several benefits to mental health by upholding the theory that exercise is related to producing positive emotion such as vigor, pleasure, and energy as well as lowering anxiety, tension, tiredness and anger. In addition, students who participate in physical activity are less likely to have stress symptoms and have more psychological well-being than those who do not. (Edward 2006, pp. 366-367; Thaylor 1987.)

Staying optimistic and problem solving are considered positive thinking methods for coping with stress. Optimism is defined as “positive feelings, high morale, determination and effective problem solving, academic and professional success, being popular, healthy long life, and adopting positive attitudes to overcome trauma and turning them into behaviors” (Peterson cited in Kumcagiz et al. 2011, p. 973).

Common negative coping mechanism used by nursing students is the consumption of substances. The paramount issue with consuming substances such as alcohol and tobacco are that it causes the brain and body to get into a state that makes the body produce more cortisol. The reason for the use of these substances is the euphoria that they cause along with the avoidance of responsibility. The outcome is a negative rein-

forcement after the effects leaves as the underlying issue the student faces is still present. Having stress will cause self-esteem issues, general health lowering and a variety of cognitive, physical, emotional and behavioral symptoms that are negative to the student. (Lovallo, 2006; Murdock et al. 2010, p. 8.)

4 Purpose, Aim and Study Questions

The purpose of this thesis is to describe knowledge on causes of stress and stress management methods of nursing students. Thus, the aim of the thesis is to produce knowledge for nursing students on stress management methods, causes of stress and how nursing students apply the knowledge for selfcare.

Our research questions include.

- What are the causes of stress for nursing students?
- What methods are nursing students using to cope with stress?

5 Methods

5.1 Literature review as a method

Descriptive literature reviews allow researchers to examine a more extensive collection of studies. Descriptive literature reviews aim to analyze, interpret and present information, create connections between the topics and offer new knowledge of the topics of interest. The advantage of this method is that it prevents the possibility of bias and subjectivity as the data selection, analysis and explanation of methodology is clear and ethical. In addition, descriptive reviews can benefit from systematic review process without constricting itself to systematic methodology. (Coughlan, Cronin & Rayn 2013, pp. 14-16.) This review explored students' experiences and coping mechanisms of stress. Hence, previous studies on stress management methods of nursing students and experiences of stress by nursing students were used and assessed in order to legitimize the issues and methods that the thesis will be implementing. The data needs to be applicable, empirical and relatable to the subject.

The descriptive literature review can be categorized in four categories. The categories include choosing the research question, choosing the data, building the analysis and reviewing the results. The research question is the base question that guides our work. It can be narrow or wide. With a narrow research question its aim is to focus on a certain topic and with a wide option it allows the researcher to widen the views on the certain subject. (Kangasniemi, Ahonen, Pietilä, Jääskeläinen & Liikanen 2013, p. 292.) This thesis chose narrowed down research questions focusing only on nursing students because the thesis topic was based on nursing students.

The data chosen must be relevant to the research question. The data is recent and supports the research question. (Kangasniemi et al. 2013, pp. 294-298.) In this thesis the data was put into a content analysis table to help analyze the data and link it to our research questions.

When building the analysis, the research questions were answered in through our data by making conclusions, interpretations and combining data. The aim is to compare and discuss the data thus making a conclusion on that basis. In the discussion ethical consideration and validation of the data is gathered, results are reviewed in a broader theoretical, conceptual and social framework. (Kangasniemi et al. 2013, pp. 294-298.)

5.2 Data search and selection

The literature used in the thesis is from reliable databases that consist of scientific articles related to our thesis. These databases include CINAHL, Medline and PubMed. The main database for data collection will be CINAHL as the studies found and used within the literature were predominantly from this source.

Firstly, search terms were selected based on the research questions. The search terms selected were; Nursing students stress strategies, nursing student stress management, nursing student stress. These search terms were searched through the selected Nursing Science Databases; CINAHL, Medline and PubMed.

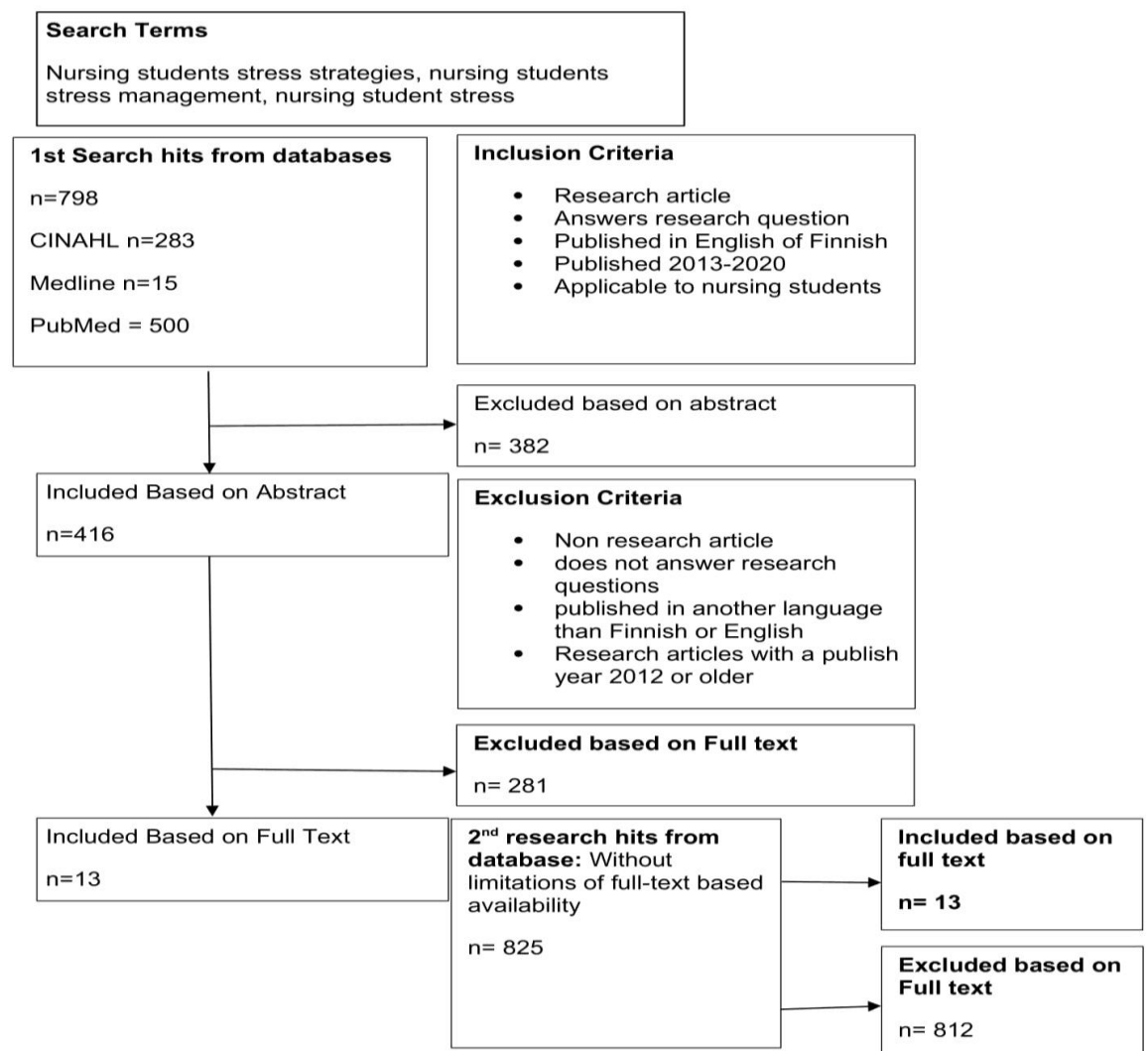
Before the search terms were put through the databases, an inclusion criterion was needed to increase scientific reliability. These Inclusion criteria was; they need to be research articles, they need to answer the research question, they are published in English or Finnish, they are published between 2013-2020 and that they are applicable to

nursing students. The search terms hits from each database were collected and documented on a table.

Next the articles titles were browsed and included based on relevance. Then the abstracts were inspected. The abstracted were included based on the following criteria: they are non-research articles, they do not answer the research questions, or they are published in another language than Finnish or English. Relevant data was included if it they answered the research questions.

To further narrow down the search hits and to confirm that relevant data is collected a second search hit from the data bases was done without the limitations of full text based on availabilities. The second search will include and exclude articles based on full text.

Figure 1. Data retrieval process from data bases



5.3 Data analysis

Data analysis is the process in which gathering, organizing, converting and modeling information is done, to later be analyzed with the goal to discover useful information within a study. In the graph above (N) is represented as Number of articles.

Data analysis of this thesis was done with the guidelines of the inductive content analysis methodology. Content analysis is primarily used as a qualitative data analysis method describing the form and content of written and spoken language (Seitamaa & Hakkarainen 2014).

This study used an inductive content analysis method. Inductive content analysis is under qualitative content analysis and is described as a method that follows loose themes to gain knowledge on a subject when there is not much empirical evidence yet on the specific subject in case. The aim of an inductive content analysis is to gather the bits and pieces of information, connect them by a main theme and make a complete version through pointing out the similarities around a certain subject. (Kyngäs, Mikkonen, Kääriäinen 2020, p.13.)

According to Elo & Kyngäs (2008 pp. 109-111), the steps to conduct inductive content analysis includes three main phases: "preparation, organizing and reporting". These phases start with Developing a categorization matrix, reviewing data for content multiple times, then data is selected based in correspondence with or exemplification of the identified categories chosen for the research. To elaborate, it starts with choosing the content we analyzed. The content was chosen and categorized based on our research questions. Categories include causes of stress among nursing students and methods of stress management amongst nursing students. After choosing the content, a keyword or a sentence was chosen from the material which had a common theme among the articles. The material was from scientific nursing articles on electrical databases such as CINAHL, Medline and PubMed. Next, the relevant content was put into further appropriate sub-categories. Subcategories under causes of stress include different factors for stress and under methods there was different strategies of stress management methods. Once the data was gathered, it was used to examine, find patterns and answers for our research questions. The full analysis was put in a table and looks like the figure below.

Figure 2. Examples of the content analysis table

Original Phrases	Simplification	Grouping	Sub-category	Upper category

6 Results

The results focused on thirteen articles from the literature review. Table 2 answers the research question “What are the causes of stress for nursing students?”. Table 3 answers the research question “What methods are nursing students using to cope with stress?”. The research questions from the thesis were answered and formulated in the tables 2 and 3 by the formation of the following categories: original phrases, simplification, grouping, sub-category and upper category.

6.1 Setting

Thirteen studies were included in the descriptive literature review (Analysis framework). Five studies were from Asia: India (Nayak 2019, p.1480), Sri Lanka (Rathnayake & Ekanavaka 2016, p.1020), Kingdom of Saudi Arabia (Al-Gamal, Alohosain & Alsunate 2016, p.198), Jordan (Hamaideh, Al-Omari & Al-Modallal 2016, p.1), Oman (Labrague, McEnroe-petite, Papathanasiou, Edet, Tsaras, Rosales, Crus, Leocadio & Lucas 2018 p. 469). Four from South America: Brazil (Hirsch, Barlem, Almeida, Thomaschewski-Barlem, Figueira & Lunardi 2015, p.501; Hirsch, Barlem, Almeida, Thomaschewski-Barlem, Lunardi & Ramon 2018, p. 1; Rodrigues, Marques, Neto, Montesinos & Oliveira 2016, p. 211; Soares, Costa, Rodrigues, Bevilaqua, Inoue, Oliveira & Matsuda 2016, p.518). Three from North America: USA (Ganzer & Zauderer, 2013, p. 244; Labrague, McEnroe-Petite, Gloe, Thomas, Papathanasiou 2017, p. 471; Olvera Alvarez, Provencio-Vasquez, Slavich, Laurent, Browning, Mckee-Lopez, Robbins & Spengler 2019, p. 453). One from Europe: Turkey (Senturk & Dogan 2018).

6.2 Design and sample size

Most of the studies reviewed for this thesis were descriptive, cross sectional studies (Al-Gamal et al. 2016, p. 198; Labrague et al. 2018, p. 469; Nayak 2019, p. 1480; Rathnayake & Ekanavaka 2016, p. 1020; Rodrigues et al. 2016, p. 211; Senturk & Dogan 2018, p. 896; Soares et al. 2016, p. 518) with sample sized ranging from 92 to 547 nursing students. Two studies used Quantitative research methods (Hirsch et al. 2015, p. 501; Hirsch et al. 2019, p. 1), One study used a systematic review (Labrague et al. 2017, p. 471), one study used a descriptive correlation design (Hamaideh et al. 2016, p. 1), one study used a structural study design (Ganzer & Zauderer 2013, p. 244) and another used a prospective cohort study design (Olvera Alvarez et al. 2019, p. 453).

6.3 Instruments

A diverse range of instruments and measurement tools were used within the data collected which was used to find information to measure stress and identify specific stressors in nursing students as well as instruments to measure nursing student stress coping strategies.

To measure stress levels amongst nursing students four studies used the perceived stress scale (Al-Gamal et al. 2016, p. 198; Hamaideh et al. 2016, p. 1; Hirsch et al. 2018, p. 1; Labrague et al. 2018, p. 469). One study used a stress in nursing education questionnaire (SINE) (Senturk & Dogan 2018, p. 896). One study used the Signals depression, anxiety and stress scale (Rathnayake & Ekanavaka 2016, p. 1020). One study used a Likert type questionnaire (Soares et al. 2016, p. 518). Finally, a KEZAK questionnaire was used in one study (Rodrigues et al. 2016, p. 211)

To identify stress coping methods most of the studies used the coping strategy inventory (Al-Gamal et al. 2016, p. 198; Hamaideh et al. 2016, p. 1; Hirsch et al. 2015, p. 501). Whereas one study used a questionnaire on coping behaviours designed by the researchers (Rathnatake & Ekanavaka 2016, p. 1020).

To gather general information on the sample size most studies used a general questionnaire (Ganzer & Zauderer 2013, p. 244; Hamaideh et al. 2016, p. 1; Hirsch et al. 2018, p. 1; Labrague et al. 2018, p. 469; Rathnayake & Ekanavaka 2016, p. 1020; Rodrigues et al. 2016, p. 211; Soares et al. 2016, p. 518). One study used a student information form (Senturk & Dogan 2018, p. 896). One study used an analysis of variance and regression

analysis (Hirsch et al. 2015, p. 501). One study used a Conductive survey to gather general information about the nursing student sample (Al-Gamal et al. 2016, p. 198). On study used a Cohort study question to gather general information (Olvera Alvarez et al. 2019, p. 453).

In one study the researched develop a procrastination scale to gather information of levels and methods of procrastination of nursing students (Nayak 2019, p. 1480) and one study used the quality-of-life evaluation questionnaire (Labrague et al. 2018, p. 469).

6.4 Causes of stress amongst nursing students

Of the thirteen articles which were examined, twelve investigated the causes of stress amongst nursing students. Using the inductive content analyses methodology 4 upper-categories for the causes of stress amongst nursing students could be identified. Figure 3 summarises the main upper categories of causes of stress gathered from the information in our inductive content analysis table (Table 2).

Figure 3. Causes of stress amongst nursing students

Category 1: Sociodemographic	Category 2: Personal indications	Category 3: Ge- odemographic	Category 4: Socio- economic
Age, marital status, culture, sex	Perceived notions, or- ganizational skills	Travel time	Education Level, School/work status, Family dynamic, Economic factors

6.4.1 Sociodemographic

The data indicated that sociodemographic factors were the most prevalent causes of stress for nursing students. Most of the articles revealed or looked at the relation between Age, and Sex on nursing students stress levels. (Al-Gamal et al. 2016; Ganzer & Zauderer 2013; Hamaideh et al. 2016; Hirsch et al. 2018; Labrague et al. 2017; Labrague et al. 2018; Nayak 2019; Olvera Alvarez et al. 2019; Rathnayake & Ekanavaka 2016; Rodrigues et al. 2016; Senturk & Dogan 2018; Soares et al. 2016.) The articles found that female students, and younger students experienced more stress compared to the

later. Senturk & Dogan (2018 p. 902) stated that “the mean scores of the academic stress subscale, practical stress subscale, and the overall scale were higher in female students participating in the study than male students and the difference was statistically significant”. Rodrigues et al. (2016 p.215) found higher frequency of stress in the ages between 18 and 22 years old. Similar findings suggesting younger students experience more stress was found within the results and data of the other studies. One studies “observed a high level of stress in married students, mainly due to demands posed by the family” (Rodrigues et al. 2015, p. 218). One other study suggests that the level of stress and causes of stress experienced by nursing students alter according to the country of origin. Especially Filipino students had undoubtedly higher levels of stress compared to students from Nigeria and Greece (Labrague et al. 2018, pp. 471-472).

6.4.2 Personal indications

Personal indications were associated with stress amongst nursing students such as pre-conceived notions caused by fear and anxiety due to lack of knowledge or experience. (Ganzer & Zauderer 2013, pp. 244-247.) Poor organizational skills of students also caused stress amongst nursing students as it effected other parts of students' lives leading to low physical condition and worse mental health, loss of self-confidence and academic failure (Nayak 2019, p. 1485). In addition, doing academic work in the expense for leisure time and recreation causes physical and mental damage on nursing students. (Hirsch et al. 2018, pp. 506-507; Olvera Alvarez et al. 2019, pp. 458-459.) The result of students who procrastinate and have poor time management skills or did not have time for recreation was an underlying cause of stress for nursing students. Ganzer and Zauderer (2013 pp. 246-247) found that structured learning and self-reflection was a convenient tool for helping nursing students increase understanding of oneself and calm anxiety and stress that may hamper learning.

6.4.3 Geodemographic

Only one study found that geodemographic was a large underlying cause of stress amongst nursing students. That, students who lived further away from school or work had larger amounts of stress (Hirsch et al. 2018, p. 8). It was further expressed in this study that the travel time and financial burden of long travel took away leisure time of students which could have been used for time spent with family, friends or study. The

data indicates that long traveling times to school or clinical practice was an underlying cause of stress for nursing students.

6.4.4 Socioeconomic factors

Socioeconomic factors were a broad category which caused stress amongst nursing students within the data. Most of the studies found that socioeconomic factors played a large role in the causes of stress for nursing students. (Al-Gamal et al. 2016; Ganzer & Zauderer 2013; Hamaideh et al. 2016; Hirsch et al. 2018; Labrague et al. 2017; Labrague et al. 2018; Olvera Alvarez et al. 2019; Rathnayake & Ekanavaka 2016; Rodrigues et al. 2016; Senturk & Dogan 2018; Soares et al. 2016.) Education levels, such as academic and practical knowledge levels affected stress levels amongst nursing students. (Al-Gamal et al. 2016; Ganzer & Zauderer 2013; Hamaideh et al. 2016; Hirsch et al. 2018; Labrague et al. 2017; Olvera Alvarez et al. 2019; Rathnayake & Ekanavaka 2016; Rodrigues et al. 2016; Senturk & Dogan 2018; Soares et al. 2016.) Stress over school and work which had a direct effect on workload and lack of leisure time also had an impact on nursing student stress. (Al-Gamal et al. 2016; Hamaideh et al. 2016; Hirsch et al. 2018; Labrague et al. 2017; Labrague et al. 2018; Nayak 2019; Olvera Alvarez et al. 2019; Rathnayake & Ekanavaka 2016; Rodrigues et al. 2016; Senturk & Dogan 2018; Soares et al. 2016.) Many studies indicated that high levels of school and clinical work, reduced time for family and leisure, and employment as a result of work and school was a significant contributor to stress amongst nursing students.

6.5 Methods of stress relief amongst nursing students

Of the thirteen articles, seven examined methods of stress relief amongst nursing students. Using the inductive content analyses methodology 3 upper-categories for methods stress relief were identified. Figure 2 summarises the main upper categories of methods of stress relief gathered from the information on our content analysis table. Table 3 has formulated original phrases, simplification, grouping, sub-category and upper category to answer the research question.

Figure 4. Methods of stress relief amongst nursing students

Category 1: Social Support	Category 2: Financial Support	Category 3: Self-care
Social circle	Wealth	Stress management, Mental Health

6.5.1 Social Support

The articles showed that nursing students often turned to their social support to cope with their stress. Articles showed that nursing students turned to family, relatives and friends to cope with their stress. (Al-Gamal et al. 2016, p. 201; Ganzer & Zauderer 2013, pp. 245-246; Hamaideh et al. 2016, p. 200-202.) In addition, it was indicated that students who used social support as a stress coping mechanism counteracted the harmful effects of stress and were also less likely to use negative stress coping methods. Furthermore, Hamaideh et al. (2016, p. 202) found that students who lived by themselves or away from their family members used more coping behaviours compared to those who live with their families. However, the same study (Hamaideh et al. 2016, p. 202) also found that students with relatives working in nursing used more coping methods than those who did not. This indicated that not only do nursing students use social support as a stress relief method but the lack of or presence of social support also lead them to adopt methods of stress relief.

6.5.2 Financial Support

One study noted that socioeconomic level of the family had a crucial effect on school progress and coping with stress. "It was reported that socioeconomic level of family has an important effect on school success and coping with stress" (Senturk & Dogan 2018, pp. 902-903). The study found that nursing students who came from families with a more financially secure family, had reduced levels of stress. It was found to be so as nursing students who could be supported by their families did not need to comit free time for work and could focus and have more time for their studies (Senturk & Dogan 2018 pp.902-903).

6.5.3 Self-care

It was found that there were several self-care strategies to cope with stress amongst nursing students. These strategies were either be positive, negative or then educational based. (Al-Gamal et al. 2016; Hirsch et al. 2015; Labrague et al. 2017; Nayak 2019; Rathnayake & Ekanavaka 2016.) Positive self-care strategies easily adoptable by nursing students included stress management skills and the use of counselling, and problem solving. (Hamaideh et al. 2016, pp. 200-202; Labrague et al. 2017, pp.477-478.) Negative self-care methods included escaping in thoughts and other general escape strategies and smoking. (Hirsch et al 2015, p.505; Nayak 2019, p.1482; Senturk & Dogan 2018, p.903.) Finally, educational based coping strategies included use of workshops, providing students and teaching methods was an effective way in reducing nursing student stress and helped with self-care for stress management (Hamaideh et al. 2016, pp. 200-202). It is shown that the use of workshops and interventions to provide knowledge for students reduces their stress both in educational and clinical settings (Hamaideh et al. 2016, pp. 200-202).

7 Discussion

The purpose of the thesis was to describe knowledge on causes of stress and stress management methods of nursing students and motivation for self-care. The causes for stress were labelled in 4 different categories to ease the reader. From the findings in the articles. (Al-Gamal et al. 2016; Ganzer & Zauderer 2013; Hamaideh et al. 2016; Hirsch et al. 2018; Labrague et al. 2017; Labrague 2018; Nayak 2019; Olvera Alvarez et al. 2019; Rathnayake & Ekanayaka 2016; Rodrigues et al. 2016; Senturk & Dogan 2019; Soares et al. 2016.) reviewed, and the most reported source of stress for nursing students is through socioeconomic reasons. Socioeconomic reasons for stress included family dynamic, education level, school/work status and economic factors. Other reasons for stress include social demographical, personal indications, geodemographic and economic factors.

When looking into the articles that found sociodemographic and socioeconomic causes for stress, findings agree with both older works done on stress. In the previous studies (Chan et al. 2009; Junious et al. 2010; Shaban et al. 2012) article agreed that the most common personal causes for stress were finances, family, and personal relationships,

these causes go under social demographic and socioeconomic factors. It must be mentioned that most of the articles indicated that female students endured more stress than their male counterparts. However, many of the articles dismissed these results due to lack of quantitative consistency between male and female students and should also be dismissed in this thesis as well.

Other factors that caused stress are not to be dismissed even though the material found from them were small, the cause can be great. Articles Ganzer & Zauderer (2013, pp. 244-248) found that personal indications such as perceived notions caused students to experience fear and anxiety over practices and organisational skills caused the students to have reduced free time. Geodemographic was a minor part in the causes of stress, but it could be one of the hardest to deal with. The stress of going to a school or practice placement that is far away causes students to have mental and physical fatigue (Hirsch et al. 2018, p. 8).

Findings of this study show that the nursing students coping methods is often on the positive side. For the purpose of accuracy and easy understanding, the coping methods which were obtained from the reviewed articles were grouped into three main categories which were social support, financial support and self-care.

The generally acceptable way of coping includes social support and positive self-care methods. (Al-Gamal et al. 2016; Ganzer & Zauderer 2013; Hamaideh et al. 2016.) These findings in reviewed articles tend to agree with previous studies that show that positive methods are the most acceptable among stress relief. (Jordan 2014, p. 19; Unger et al. 1983.) These include leisure time, physical activity, and optimism. Most of the findings in the researched articles were categorised in self-care. Self-care includes sub-categories such as Stress management and mental health. Stress management methods were widely discussed in the articles thus the reason for the number of findings on the subject. Other important and common stress coping methods included financial and social support. Financial support tends come from the families social economic standing according to our findings. Social support was shown to come from the student's families, relatives, friends and relatives in nursing. (Al-Gamal et al. 2016, p. 201; Ganzer & Zauderer 2013, p. 245-246; Hamaideh et al. 2016, p. 200-202; Senturk & Dogan 2018, pp. 902-903.)

7.1 Ethical Consideration

Ethics refers to the set of principles of morals and values. Adherence to research ethics is particularly emphasized in the selection and processing of our data. It was fair, equal and honest. The sources used were researched facts and not opinions and the databases used were known reliable databases of the research field in question. (Finnish advisory board on research integrity 2012). That way we secured that the sources are from professionals in that specific field. The analysis of the results is explained in detail and the analysing of the results was done precisely and without changing the meaning of the text to avoid misinterpretation and falsification of the original data. (ARENE 2020) The thesis took into account the work and achievements of other researchers in an appropriate way, respecting the work they did, giving them the value and significance, marking the references and sources appropriately following the guidelines of the written work of Metropolia University of Applied Sciences. It is ethical for researchers to make clear choices as to why they use certain prior material. Articles used in this thesis are scientifically evidence based and current (2013-2020) to keep this study validated to current information on the topic. This thesis was made as a literature review, so it did not need permissions for research and no interviews or questioners were made.

Research we did is defined by various laws, documents, regulations and research ethics advisory board. (Finnish advisory board on research integrity 2012) Established standards are expressed in legislation. When referring to an article or research, source references we made sure not to plagiarise by direct copying of another author's text which is a copyright infringement. This thesis was written in adherence to the laws listed below. (ETENE 2011)

Data Protection Act 1050/2018: The data provided to us from a legal source and is not personal data. Copyright act 404/1961, 608/2015: we adhere to copyright laws and do not infringe the material provided to us by copying or plagiarising a copyrighted work. Act on the Openness of Government Activities 621/1999: Our thesis is a public document and is published on a public domain adherence to the law mentioned.

The reliability of our work has been checked by taking our thesis in autumn 2020 through turnitin-application. The references were be checked multiple times and corrected. The articles we researched for our research questions were in English so there was no conflict in translating since there was no need for it.

7.2 Validation

The thesis is a qualitative research which required us to consider the validity throughout the gathering of data (Whittemore 2001). This was done with detailed explanation of validated data collection methods and how the study applied them. The validity of the thesis is affected by the proficiency of the researcher, expertise in their field of research, the clarity and tradition of the research writing style, a plain description of the title of the research topic and an extensive description of the research in an abstract. Research data should answer research questions and be presented clearly and appropriately and linked to prior knowledge. The connectivity of research results to the field and practice increases the reliability of research. (Coughlan et al. 2013 pp. 79-84.)

During the planning of our thesis, it was critical not to let our own preconception guide us through this work (Tuomi & Sarajärvi 2018 p.118). We found this hard at first since the subject of our thesis was very close to our personal thoughts, but we remained objective throughout the planning process.

Methods to achieve trustworthiness, as describes by Graneheim and Lundman (2003), suggests that the concepts of credibility, dependability and transferability need to be considered to have reliable qualitative data. During the data selection process, the data selected was reliable, from a diverse number of sources and answered our research questions. Thus, being credible, dependable and transferable. The research questions were clear and concise which helped in finding our answers. (Kankkunen, Vehviläinen & Julkunen 2013 pp. 224–225.) When we started analysing the data an analysis table was made to make the data clear and concise for the reader and creators to validate the data researched. While doing our analysis table we noticed due to the number of articles available it was hard to find abundant information on the subjects that was reliable. We concluded that 13 articles were enough for us to finish the thesis.

8 Conclusion

Based on the findings of this bachelor thesis our study questions were answered and The findings of this study show that, it was evident that socioeconomic factors play a major role in stress causes. (Al-Gamal et al. 2016; Ganzer & Zauderer 2013; Hamaideh et al. 2016; Hirsch et al. 2018; Labrague et al. 2017; Labrague et al. 2018; Nayak 2019;

Olvera Alvarez et al. 2019; Rathnayake & Ekanayaka 2016; Rodrigues et al. 2016; Soares et al. 2016; Sunturk & Dogan 2019.) Previous studies also noted school related stress was also a big issue and that also correlated with our findings with education level (Chan et al. 2009; Junious et al 2010; Shaban et al. 2012). Fortunately, the study that time management skills can be taught (Hirsch et al. 2018) and preconceived notions can be eased (Ganzer & Zauderer 2013) through educational workshop interventions.

Findings of this thesis suggest that there is sufficient information on the self-care methods of stress management amongst nursing students. The self-care methods used by nursing students indicate that nursing students have motivation for self-care during their studies. The thesis found that the main methods in which nursing students cope with stress fall into the categories of social support (Al-Gamal et al. 2016; Ganzer & Zauderer 2013; Hamaideh et al. 2016), financial support (Senturk & Dogan 2018) and self-care (Al-Gamal et al 2016; Hirsch et al. 2015; Labrague et al. 2017; Nayak 2019; Rathnayake & Ekanayaka 2016). However, the previous studies suggested that stress coping mechanisms amongst nursing students only fell into the category of self-care (Chan et al. 2009; Junious et al. 2010; Shaban et al. 2012) but did not mention the use of networks through social support or wealth to cope with stress. Future studies should investigate the effectiveness of social support and wealth as a coping mechanism for stress amongst nursing students.

Finally, within the data search it became evident that we would not find enough articles to cover the subject with abundance of data. We only found 13 reliable articles that were on the topic of nursing student stress and this caused us to have such a narrow base for research. Although we had a narrow number of articles the evidence is shown to be supported with the previous studies before 2013. Nursing students suffer from stress but their motivation for self-care is conspicuous and their methods show that.

The information gathered from the thesis is useful for nursing competence within the field and educational institutions. Firstly, it is paramount for nursing mentors with students to understand stress triggers within the clinical setting. By understanding this, mentors can help create environments for students where maximised learning can occur with sufficient support and mentoring. In addition, educational institutions and teachers must also understand the stress nursing students experience during their studies and develop strategies where they can educate nursing students on effective tools and positive stress management methods. Nursing students can gain key knowledge on the causes of stress

from this thesis. By understanding where stress is coming from, nursing students can identify the stress triggers, and have a deeper understanding. Doing this will allow students to develop effective stress management methods as an indication for self-care on an individualistic level.

9 Professional Growth

Through the execution of the thesis, the writers gained the tools and experience to execute valid research methodology to identify key information in data. In addition, the writers had gained knowledge on the subject which is relevant to themselves and other students undergoing nursing studies. By grasping the knowledge from the data for the causes of stress amongst nursing students, it is easier for students to understand where stress is coming from and identify personal stress management techniques. By doing this, self-evaluation can be made by students and professionals on how they can self-improve their coping behaviours. In addition, the information from the data is applicable for nursing professionals who are mentoring students especially in studies which outlined the causes of stress for nursing students during clinical practice. By understanding these stress triggers, mentors can create a better learning environment for students to cope with their own stress and maximise learning.

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Table 1. Analysis framework

	Author, Date, Country	Title	Aim and purpose	Material and method	Results (How does this answer our study question)	
1.	Labrague, J.; McEnroe-Petitte, M.; Gloe, D; Thomas, L. Papathanasiou, V. Tsaras, K. 2017. USA	A literature review on stress and coping strategies in nursing students.	To identify the level of stress, its sources, and to explore coping methods used by student nurses during nursing education.	A systematic review of studies conducted from on stress and coping strategies in nursing students. CINAHL, MEDLINE, PsycINFO and PubMed were used as the primary databases for the search of literature. Keywords to search for these studies were stress, coping strategy, nursing students and clinical practice.	<i>What are the causes of stress for nursing students?</i>	<i>What methods are nursing students using to cope with stress?</i>
					In this study the researchers found that the main causes for stress in nursing students are, examinations, relations with friends, financial problems, family matters, health concerns, clinical practice, reports, taking care of patients, high workloads, inadequate interactions with staff and faculty as well as lack of clinical competence.	The methods the research found that students use to relieve stress in this article include, problem-solving approach, avoidance method, transference method. The main stress relief method was transference method. This includes activities such as exercise, sleeping, watching movies and taking a shower.
2.	Senturk S. & Dogan N. 2018, Turkey	Determination of the Stress Experienced by Nursing Students' During Nursing Education.	To determine the stress experience by nursing students during nursing education	In the collection of the data 'Student information Form' and 'Stress in Nurse Education Questionnaires (SINE)' were used. The study was conducted as a descriptive cross-sectional type of study carried out with 318 nursing students in a city in the Southeastern Anatolia Region in Turkey	In this study the main factors for stress include social, economic, academic, self-confidence, female gender and age factors.	Smoking was used as an ineffective way of dealing with stress which caused a negative lifestyle. Students understood that it caused a negative lifestyle which in turn might have benefited some to not to do it. Socioeconomic status of family helped students cope with stress
3.	Hirsch C, Barlem E, Almeida L, Tomaszewski-Barlem J, Figueira A, Lunardi V. 2015. Brazil	Coping strategies of nursing students for dealing with university stress	to identify the coping strategies used by nursing students in a university in southern Brazil	quantitative study was carried out with 146 nursing students, through application of the Coping Strategies Inventory. For the data analysis, descriptive statistics, analysis of variance and regression analysis were used.	This study did not cover this topic	This study found that students happy with the course used positive coping strategies targeting the problem, whereas displeased students used negative strategies focusing on the emotion. Positive coping strategies include: Positive Reappraisal and Planning/ Resolution. Negative strategies include: Denial of problem, Distancing/ Distraction, Acceptance/ resignation.
4.	Nayak S. 2019. India	Impact of Procrastination and Time-Management on Academic Stress among Undergraduate Nursing Students: A Cross Sectional Study.	to assess the link between procrastination, time management skills and academic.	Cross-sectional study for 201 undergraduate nursing students in a private college of South India. A descriptive correlational survey design was used to answer the research question. The demographic questionnaire was used to collect the basic information such as age in years, gender and year of study. Procrastination among the nursing students was assessed by a procrastination scale, which was developed by the researcher.	The study focuses on procrastination and its cause of stress. Procrastination and poor time management skills can lead according to the article to academic stress - > Academic stress can lead to poor physical and mental health, losing self-confidence and academic failure.	Time management skills were tied to how well students experienced stress. Students with good time management skills tended to not have as much stress as students with bad time management skills,
5.	Rathnayake S., Ekanayaka J. 2016. Sri Lanka.	Depression, Anxiety and Stress among Undergraduate Nursing Students in a Public University in Sri Lanka.	to examine depression, anxiety and stress and associated factors among	A cross-sectional study was conducted at University of Peradeniya. The sample was 92 undergraduate nursing students. The students completed questionnaire. Depression, anxiety and stress were	From the sample group the study found that students who experience mild to extreme stress were more likely to be from ages 22-24, were	The study found that the most common coping strategies for nursing students include; avoidance, transference, problem

			undergraduate nursing students in Sri Lanka.	measured by the Sinhala version of Depression, Anxiety and Stress Scale.	male, were in the third or fourth year of study, lived in university accommodation, with father who were not educated or only primary school educated, with mothers who were secondary or tertiary educated, and came with families who had insufficient family expenditure. The study found that there is a strong positive relationship between stress, anxiety and depression amongst nursing students	solving, optimism, self-reliance strategies, spiritual strategies, and relaxation strategies. The study also comments the importance of teachers need to recognise the most stressful areas to encourage students to use healthy coping strategies.
6.	Al-Gamal E. Alhosain A. Alsunate K. 2016. Kingdom of Saudi Arabia	Stress and coping strategies among Saudi nursing students during clinical education.	To determine the stress level and coping strategies among undergraduate Saudi female students during their clinical education.	A descriptive cross-sectional design was used in this study. The sample included 121 female Saudi nursing students. Data was collected by conducting surveys on demographic, perceived stress scale, and coping behaviour inventory.	The study found the causes of stress for nursing students include; clinical practice affecting other activities, worrying about bad grades, workload, transferring from student to nurse role, unfair evaluation from teachers, quantity of homework, discrepancies between theory and practice, teachers' comparison among classmates, competition from peers, lack of experience, inability to give doctors appropriate response, medical professionals lack of empathy, teachers instructions not meeting expectation, insecurity about discussing with others, unfamiliar with patient diagnosis and treatment, teachers lack of caring and guidance, fast changes in patient condition, dullness of clinical practice, inability to help patients with physical-psychosocial problems, stress from hospital environment, inability to reach one's expectations, unfamiliar with medical records and terminology, unskillful nursing techniques, inability to provide patient with physical care, unfamiliar with wards facilities, performance does not meet teachers expectations, worrying about not being trusted, does not know how to communicate with patient, does not get along with peers	Confidence in overcoming difficulties, staying optimistic, relaxation, confidence of performing as well as senior schoolmates, being objective, setting up objectives and solving problems, finding the meaning of stress incidents, adopting different strategies to solve problems, attribute to fate, sleep, avoiding difficulties during practice, make plans, list priorities and solve stressful events, apply past experiences to solve problems, having a good meal, expect miracles, cry, expecting others to solve the problem, avoid teachers, to lose one's temper.
7.	Soares V. Costa M. Rodrigues A. Bevilacqua J. Inoue K. Oliveira J. Matsuda L. 2016. Brazil	Stress among nursing undergraduate students of a Brazilian public university.	The aim was to determine the level of stress among students of an undergraduate course in nursing.	Cross-sectional study was done. The study was participated by 111 students who responded to a questionnaire for the Assessment of Stress among Nursing Students. The questionnaire was a Likert type.	The study found that the biggest factors contributing to students stress included; performance of practical activities and skills, professional com-	This study did not have any findings on this subject. However, the study did comment the paramount importance of including pedagogical stress coping strategies

					communications and relationships, time management, environment, professional training, and theoretical activity.	into the course curriculum for students.
8.	Hamaideh S, Al-Omari H, Al-Modallal. 2016. Jordan	Nursing students' perceived stress and coping behaviors in clinical training in Saudi Arabia.	To identify levels and types of stressors among nursing students during their clinical training and their coping behaviours	A descriptive correlational design was employed to gather information on perceived stress and types of coping behaviours. The sample size included 100 nursing students during their clinical practice. Self-reported questionnaires were used and the instruments which were used included were the Demographic data sheet, perceived stress scale, and the coping behaviours inventory.	The study found the biggest factors causing stress in nursing students in clinical training include; stress from taking care of patients, stress from teachers and nursing staff, stress from assignment and workload, stress from peers and daily life, stress from lack of professional knowledge and skills. Stress from the environment	The study found the most used coping behaviours included avoidance, problem solving, staying optimistic and transference.
9.	Ganzer C, Zauderer C. 2013. United States	Structured learning and self-reflection: strategies to decrease anxiety in the psychiatric mental health clinical nursing experience.	To test a teaching-learning strategy to help nursing students decrease stress and anxiety.	A structural preclinical workshop and a self-reflection was used in the study to facilitate 30 nursing students perception of the psychiatric mental health clinical experience. Students participated in a self-reflection exercise before commencing the workshop. Students participate in a preclinical workshop focusing on therapeutic communication and mental health diagnosis. Workshop included role play, interactive scenarios as well as media and movie clips, followed by open group discussion.	This study outlines that nursing students stress can be triggered by students' perception during their first mental health placement. This stress is caused by fear of physical injury, discomfort in communicating with patients and concerns about spending time on a locked unit.	This study implemented a structural preclinical workshop to provide students with an overview of psychiatric mental health nursing to alleviate their anxiety prior to their shifts. The workshop used self-reflection learning exercises to help students cope with stress before practical experience. The results found that students gained self-awareness, built confidence and knowledge through self-reflection exercises.
10	Labrague L, McEnroe-Petitte D, Papathanasiou I, Edet O, Tsaras K, Rosales R, Crus J, Leocadio M & Lucas K. 2018 Oman	A cross-country comparative study on stress and quality of life in nursing students.	To compare perceptions of stress and quality of life among nursing students from Philippines, Greece, Nigeria and to examine the impact of stress on quality of life.	A comparative cross sectional research design was used to collect data on 547 Nursing students from the Philippines, Greece and Nigeria. The perceived stress scale was used to measure perceived stress level of students and the quality of life evaluation skill was used to measure quality of life.	The study found the causes of stress amongst nursing students came from; lack of professional knowledge and skills, assignments and workload, taking care of patients, clinical environment, faculty and staff and from peers and daily life. However, the study found that the stressors which predicted a negative QoL included taking care of patients, clinical environment, faculty, peer and staff encounters	The article did not cover this topic
11.	Hirch C, Barlem E, Almeida L, Tomaschewski-Barlem J, Lunardi V, Ramon A. 2018. Brazil	Stress triggers in the educational environment from the perspective of nursing students.	To identify students stress triggers in the educational environment as perceived by nursing students.	A descriptive-exploratory, quantitative study conducted with 146 nursing students whom the stress assessment scale was applied. The study was conducted in 2013. To analyze data a descriptive statistics, analysis of variance and linear regression was used.	The study found that trigger which cause academic stress from the perspective of nursing students included. Environmental and professional relationships, commuting, academic education, practical knowledge acquired, lack of time and leisure, professional insecurity, and general stress. In addition stress dimensions and sociodemographic and academic variables found that students are more stressed;	This article did not cover this topic

					if they are in 5 th to 9 th semester of study, have over 5 courses going at one time, if they live alone, if they smoke, if they have children, if they are working within the health field, if they are considering to discontinue their studies, if they have poor professional relationships, if they do not have easy access to internet, in they do not have an appropriate place to study,	
12.	Olvera Alvarez H, Provencio-Vasquez E, Slavich G, Laurent J, Browning M, Mckee-lopez G, Robbins L, Spengler J. 2019.	Stress and Health in Nursing Students The Nurse Engagement and Wellness Study.	To investigate the role of social, behavioral, and environmental factors in new nurses and to discuss demographic, health, and life stress characteristics of the nursing student.	A prospective cohort study was used to conduct a estimate of health endpoints, life stress, behaviors, personal traits, social factors, indicators of engagement and performance, and environmental exposures in nursing students. Adjusted odds ratios and analyses of covariance were used to examine concordance among the threshold of the start of studies.	This study found that female nursing students were more prone to stress than male nursing students. Both parties experienced similar causes of stress which included; other relationships, marital/partner, interpersonal loss, role change/disruption, having a fulltime job, and being over the age of 25	This article did not cover this topic
13.	Rodrigues E, Marques D, Neto D, Montesinos M, Oliveira A. 2016. Brazil	Stressful situations and factors in students of nursing in clinical practice.	Assess risk factors for stress in undergraduate nursing students in clinical practice within a public univeristy.	Cross sectional descriptive study with 116 students. A bilingual KEZKAK questionnaire was used to measure	The study found the causes of stress for nursing students includes; students between the ages 18-22, Students who were married, students who were permanent contracted workers, those who lived with their families, excessive work. The study found the greater predisposition to stress also included Being infected by a patient, overload of academic work, jabbing oneself by accident with an infected needle.	This article did not cover this topic

Inductive content analysis

Table 2. What are the causes of stress for nursing students?

Original Phrases	Simplification	Grouping	Sub-category	Upper category
"higher prevalence of stress was prevalent in the ages between 18 and 22 years old"	Life experience influences stress	Life experience	Age	Sociodemographic
"Our study further found that age was significantly associated with depression and anxiety"	Age affects mental health			
"Also observed was a high level of stress in married students, mainly due to the demands posed by the family which are peculiar to this condition"	Demands posed by family increase stress	Family responsibilities	Marital status	Sociodemographic
"This seems to suggest that the degree of stress and the type of stressors used by nursing students differ according to the country of origin. Specifically, Filipino	Cultural differences and educational programs experience different levels of stress	Culture differences in education	Cultural	Social demographic

nursing students reported significantly higher levels of stress as compared to students from Nigeria and Greece. “				
“It was determined that the mean scores of the academic stress subscale, practical stress subscale, and the overall scale were higher in female students participating in the study than male students and this difference was statistically significant”	Female nursing students scored higher on stress scales compared to men	Female	Sex	Social Demographic
“female nursing students experienced higher levels of stress as compared to their male counterparts”	Female nursing students experience more stress compared to males.			
“Preclinical responses also centred on personal safety. Several students harboured the perception that the PMH clients they would encounter would be violent and irrational. Students expressed concerns about being injured by an uncontrolled client and having to somehow manage the client's unpredictable behaviour. “	Students experience fear and anxiety before psychiatric mental health clinical experience	Fear and anxiety	Preconceived notions	Personal indications
“The difficulty in time management for the fulfillment of academic activities at the expense of leisure and recreation can cause physical and psychological consequences of stress in nursing undergraduate students”	Reduced leisure and recreational time due to difficulty in time management causes stress	Poor time management	Organizational skills	Personal Indications
“Procrastination and poor time management skills can lead to academic stress among the students. Academic stress can lead to poor physical and mental health, losing self-confidence and academic failure.”	Procrastination and poor time management causes stress			
Commuting and the consequent financial expenditure to travel from home to college or to supervised training facilities, as well as the use of public transportation, which the students identified as stress factors	Long and expensive traveling times to school and internships causes stress	Long travel times	Travel time	Geodemographic
The result for this domain, which addresses the perceptions of the students regarding the difficulties in access to the university, the internship locations and the use of public transport, was in line with a study that aimed to relate stress and sleep quality among nursing students and did not find a positive relationship between the Environment domain and the students' rest.	Location of school and internship causes students to have stress and sleeping issues			
“The anxiety highlighted by the students, with regard to their professional future, reflects the requirement of the current job market,	Uncertainty of professional future caused insecurity and stress	Uncertainty of future	Economic factors	Socioeconomic

which requires trained professionals to perform their functions with excellence."				
"it was thought that the increase in parents' educational level caused the adolescent to have an expectation about educational success and increased the stress level"	Level of parent's education affected levels of stress amongst nursing students	Socioeconomic demographic of family	Family dynamic	Socioeconomic
"Socioeconomic level of family plays an important role in stressful conditions among students. With socio-economic level of family, we imply variables like level of income, social circle and social status."	Social demographic of family affects level of stress amongst nursing students			
"Elements which trigger stress, such as excessive work, can influence personal and professional behaviour, impairing the individual's quality of life."	Increased workload causes stress	Stress over work and school	School/ work status	Socioeconomic
"Not having time to be with family, relatives or to take part in leisure activities causes a stress overload leading to physical and emotional exhaustion."	Without family time or leisure time stress load increases			
"Results showed that the highest source of stress in clinical training was from assignments and workload"	Assignments and clinical training are a source of high stress			
"Students who work tend to report difficulty in concentration, low quality sleep and deficits in learning. The influence of stress on the sleep quality of the nursing students was analysed, which found that employment causes negative interference in the rest of the students because they use the period/time that should be allocated to the rest to fulfill their academic obligations (teaching and research activities) and social life"	Employment interferes with student studies and quality of life, which in turn increases levels of stress			
"it was determined that the mean scores of academic stress were higher than the mean scores of practical stress"	Students are more stressed from academic studies compared to practical work experience			
"In the current study, the most reported stressors among students were stress from providing patient care, stress from teachers and nursing staff, and stress from assignments and workload"	The largest cause of stress for students were related to school-work relationships and balance			
"Heavy academic workload in final years, completing all practical components and assignments, completing final research projects with deadlines, passing all the examinations, finding job and preparing for new role are some of them.	Heavy workload from final year and final semester causes stress amongst nursing students.			

These factors may contribute high depressive and anxiety symptoms among students in senior classes."				
"The students perceive that the low level of theoretical and practical knowledge acquired over the course of the undergraduate program is a stress trigger factor that leads to a feeling of insecurity regarding professional prospects"	Insecurity of self-competence causes stress	Self-competence	Education level	Socioeconomic
"A lack of professional knowledge and skills was reported as the main source of stress"	Lack of knowledge causes stress			
"Nursing students should learn and acquire knowledge to be able to manage different types of patients with different health needs. To reduce stress, nursing educators should provide such information to students and enhance their abilities and achieve skill competency prior to dealing with patients. "	Nursing educators should provide more knowledge to students to reduce stress			
"stress is associated with lack of professional knowledge and skills, patient care and clinical performances of students."	Lack of professional knowledge and clinical performance causes stress			

Table 3. Methods of stress relief for nursing students What methods are nursing students using to cope with stress.

Original phrases	Simplification	Grouping	Sub-category	Upper-category
"Another study suggested the use of social support system such as the family, friends, relatives and even co-workers is essential to counteract the harmful effects of stress"	Social support from family and friends helps reduce stress	Family/relatives/friends	Social circle	Social support
"Students who live alone and away from the family used more coping behaviors than those who live with their families."	More coping methods were used when students didn't have family near them.			
"Nursing students who have relatives in nursing used more coping behaviors than those who did not."	Nursing students who have relatives in nursing have more tendencies to use coping behaviors than those who did not.			
"In the literature, it is reported that socioeconomic level of family has an important effect on school success and coping with stress"	Higher socioeconomic status helps with coping with stress	Financial stability	Wealth	Financial support
"It was possible to identify that the coping strategies comprising the escape/avoidance factor had a higher mean among the responses, demonstrating that stu-	Escaping in thoughts is a common method to reduce stress. Interventions were used to reduce stress among nursing students.	Coping mechanisms	Stress-management	Self-care

dents try to escape problems in illusory or imaginary ways, fantasizing situations and minimizing the seriousness of the situation, also characterized as a strategy that focuses on Emotions."				
"The coping strategy most used by nursing students was escape. This strategy focuses on emotions, solves little, and is not very effective in managing the stressor."	Escape is a common coping strategy but is not very affective			
"students also stated that smoking had an effect on stress, was used as an ineffective way of coping, and would lead to a negative lifestyle."	Smoking is a negative way to cope with stress			
"several interventions were mentioned to address stress in nursing students. This included improving the clinical education program inclusion of stress management during orientation of activities and enhancement of time management skills of nursing students, and counseling"	Stress management skills, time management skills and counseling were used as ways to reduce stress.			
"It is also evident that the most preferred strategy used by nursing students to cope with stress was the problem-solving approach."	Problem-solving approach is a common method of coping with stress			
"This study also showed that the most common coping behavior used by nursing students to relieve stress in clinical training were problem-solving"	The most common method of coping with stress was problem solving.			
"Students revealed they engaged in positive coping strategies through the use of a problem-solving Approach."	Problem solving approach is a positive method of stress relief and students are using it.			
"Use of an avoidance method of coping was common in nursing students who experienced stress from their teachers and staff nurses"	Avoidance method is common among nursing students			
"The information presented in the workshop and participation in the process of self-reflection increased student self-awareness and ability to cope psychologically"	Workshop that provided self-reflection method helped students become more self-aware and to cope psychologically	Methods to control your own thoughts	Mental Health	Selfcare
"By involving students in a structured preclinical laboratory workshop, faculty were able to engage students and equip them with knowledge of what to expect and lower anticipatory anxiety about this experience."	By engaging students and providing them with knowledge of what's to come, students had less anxiety about the coming clinical practice			

"Implementing a variety of teaching methods has been shown to be beneficial in decreasing negative thoughts and experiences in the PMH (psychiatric mental health clinical practice) setting."	Invoking a variety of teaching methods has helped students to decrease negative thoughts and experiences in the mental health practice.			