

COPING STYLES AND SOURCES OF STRESS OF UNDERGRADUATE HEALTH SCIENCE STUDENTS: AN INTEGRATIVE REVIEW

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COPING STYLES AND SOURCES OF STRESS OF UNDERGRADUATE HEALTH SCIENCE STUDENTS: AN INTEGRATIVE REVIEW

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INTRODUCTION:

Higher education has been acknowledged as essential for both personal success and economic growth. Tertiary education is a significant determinant for several social benefits such as the acquisition of advanced knowledge, increased rates of employment and better financial stability¹. However, the attainment of these future benefits requires students to successfully complete their undergraduate studies, which is fraught with challenges, assessment tasks, and the associated stress of studying at a higher education institution.

Fears concerning the future, having to leave behind ¹⁹ friends and family, and having a poor work-life balance can all take a toll on the mental health of university students. This was confirmed by Makoni², who stated that mental health remains a global concern for university students, as psychological distress impacts negatively on academic performance. Stressful factors experienced by university students include rigid course structures, insufficient support systems, inadequate finances and conflicting role demands of students, due to either childrearing, caring for an elderly family member or part-time employment³. Moreover, research further revealed that many students are academically unprepared for higher education, as many of them are first generation students, who may lack the social capital to succeed⁴. This is reflected in their poor academic performance such as high failure and dropout rates, and lengthy completion times among others⁵. Moreover, health science students may carry higher degrees of stress, as there is a fieldwork and service learning component. This may be attributable to the health science courses, being professionally oriented qualifications. This integrative review therefore warrants exploring the ¹⁸ sources of stress and coping strategies of undergraduate health science students.

METHODOLOGY

An integrative review of the literature was conducted to understand the sources of stress, as well as the coping mechanisms utilised by undergraduate health science students. ¹ This method is the most comprehensive approach regarding reviews, and allows for the inclusion of different types of studies for a wider and holistic understanding of the research phenomenon.

⁵ This study was underpinned by the following research question: *What are the sources of stress of undergraduate health science students, and how do these students cope with stress?*

Inclusion criteria for the study were:

- Articles between the years 2000-2020 were included.
- The study was limited to undergraduate health science students of all years.

- All articles were in English.
- Only articles with full texts available were included.

Exclusion criteria for the study were:

- Medical students were excluded from the study as they are exposed to different stressors.
- Postgraduate health science students were excluded from the study, as they may be exposed to different stressors, and by virtue of their maturity, may cope differently.

Research process

The research process was done in phases. Firstly, the following health databases namely Microsoft academic, Refseek, Catalogue search, SagePub, SciELO, Semantic Scholar, Science Direct, Google Scholar, Pubmed, Ebscohost and Medline were used to conduct the literature searches. The following descriptors and Boolean phrases were used:

- undergraduate health science students,
- undergraduate Occupational Therapy students,
- coping mechanisms utilised by undergraduate health science students, OR undergraduate Occupational Therapy students,
- stressors among undergraduate health science students, OR undergraduate Occupational Therapy students
- AND sources of stress in undergraduate health science students OR undergraduate Occupational Therapy students.

The initial searches yielded 60 studies, but the final sample consisted of 33 articles that met the inclusion criteria. After establishing the final sample, the information to be extracted from the studies was defined and categorized. During the initial gathering of articles the title and abstract were first read. During the first and second round of data analysis the whole articles were read. The final 33 articles were each read and analysed, and grouped by sources of stress or coping strategies. The research process is illustrated in Figure 1 which follows.

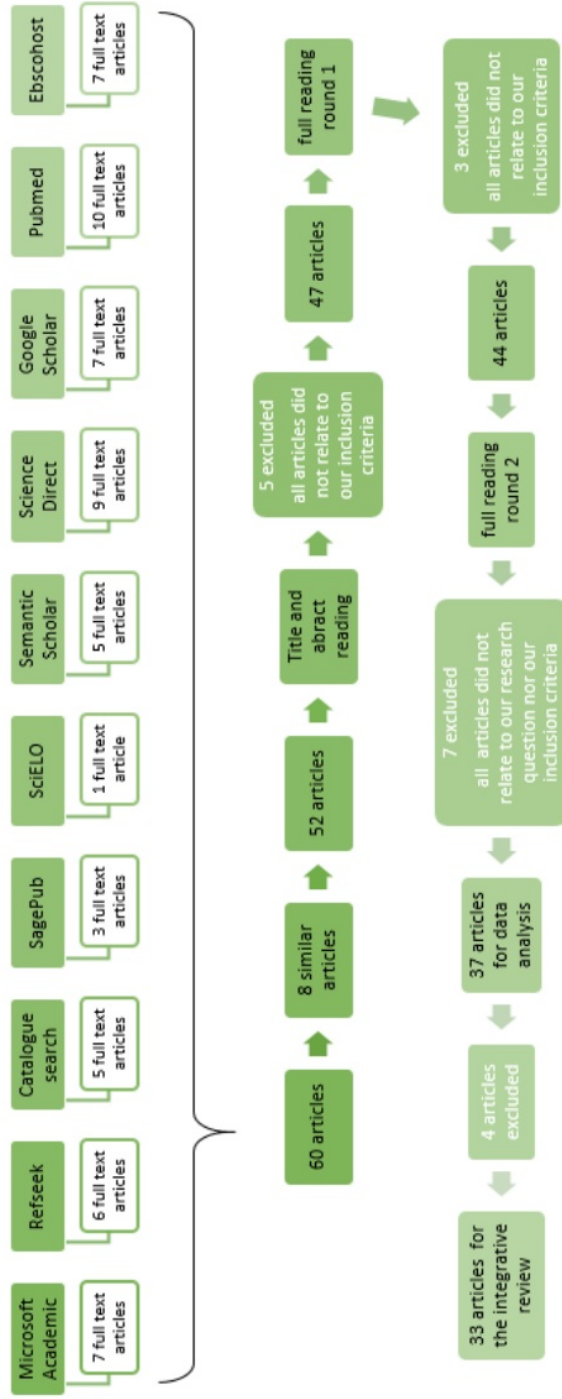


Figure 1: Flow chart showing the research process

FINDINGS

¹ This review consisted of 33 articles published between 2000 and 2020. Twenty-five studies from the specified sample were quantitative studies, six were qualitative studies, and two were systemic reviews. The studies were conducted in various countries including South Africa, Nigeria, Saudi Arabia, the United Kingdom, United States and Australia.

²⁴ The articles included in this integrative review considered the sources of stress and coping strategies of various health science disciplines. The studies were largely focused on the perspectives of occupational therapy, physiotherapy, dental therapy, speech pathology, pharmacy, and nursing students. The articles ²⁴ included in this review are presented in Table 2 below, which are organized by year, shows the most recent studies first.

Table 1

Description of studies showing title, year, methodology, authors and location of study.

Title of the journal article	Authors	Year	Methodology	Country
¹⁰ Predictors of mental distress among undergraduate health science students of Hawassa University, College of Medicine and Health Sciences, Hawassa, SNNPR, Ethiopia: a cross-sectional study	Bedaso, A., Duko, B., & Yeneabat, T.	2020	Quantitative	Ethiopia
²² Nursing students' stress and coping strategies during clinical training in KSA	Waled, A.M., & Badria M.A.	2019	Quantitative	Saudi Arabia
Psychosocial stress factors among mental health nursing students in KSA.	Seham, M	2019	Qualitative	Saudi Arabia
Sources of stress in a pharmacy student population.	Garber, M., Huston, S., & Breese, C.	2019	Quantitative	United States
¹² Assessment of Level and Sources of Stress Among Allied Health Sciences Students of Bayero University Kano: A	Muhammad, D., Ahmad, A., & Usman, J.	2019	Quantitative	Nigeria

12	Comparison Between Clinical and Pre-Clinical Students.				
	Resilience in occupational therapy students.	25 De Witt, P.A., Monareng, L., Abraham, A.A.H., Koor, S., & Saber, R.	2019	Quantitative	South Africa
7	Stress and coping strategies among nursing students: an international study	Labrague et al	2018	Quantitative	Greece, Philippines and Nigeria
	Examining stress perceptions and coping strategies among Saudi Nursing students.	Labrague, L.J.	2018	Systemic review	Saudi Arabia
	Dealing with stress: Patterns of self-comfort among healthcare students.	Vera Dahlgvist, A. S., & Astrid, N.	2018	Qualitative	Sweden
21	Perceived stress and sources of stress among physiotherapy students from 3 countries	Jacobs, T., Gummesson, C., Nordmark, E., Ansary, D., Remedios, L., & Webb, G.	2018	Quantitative	Israel, Australia and Sweden
17	Nursing students' perceived stress, coping strategies, health and supervisory approaches in clinical practice: A Slovak and Czech perspective	Elena, G., & Renate, Z.	2018	Quantitative	Czech Republic and Slovakia
5	A cross- sectional study of stress and its sources among health professional students at Makerere University, Uganda	Amanya, S. B., Nakitende, J., & Ngabirano, T. D.	2017	Quantitative	Uganda
16	Perceived stress and well-being amongst Dental Hygiene and Dental Therapy Students	Harris, M., Wilson, J., Holmes, S., & Radford, D.	2017	Quantitative	United Kingdom

7 A literature review on stress and coping strategies in Nursing students	Leodoro J	2017	Systemic review	Saudi Arabia
2 Perceived stressors of oral hygiene students in the dental environment	Gordon, N., Rayner, C., Wilson, V., Crombie, K., Shaikh, A., & Yasin-Harnekar, S	2016	Quantitative	South Africa
11 Alcohol use by occupational therapy students: An exploratory study.	Randy, P., & Alyssa, E.	2016	Quantitative	United States
11 Replacing stressful challenges with positive coping strategies: a resilience program for clinical placement learning.	Delany, C., Miller, K. J., El-Ansary, D., Remedios, L., Hosseini, A., & McLeod, S.	2015	Qualitative	Australia
23 OT students' experience of stress and coping	Govender, P., Mkhabela, S., Hlongwane, M., Jalim, K., & Jetha, C. G	2015	Quantitative	South Africa
14 Source of stressors and emotional disturbances among undergraduate science students in Malaysia.	Radeef, A.S., Faisal, G.G., Ali, S.M., & Ismail, M.K.	2014	Quantitative	Malaysia
14 Nature of Stress among Health Science Students in a Malaysian University	Othman, C., Farooqui, M., Yusoff, M., & Adawiyah, R.	2013	Quantitative	Malaysia
13 Causes of Stress and Coping Strategies Adopted by Undergraduate Health Professions Students in a	Gomathi, K., Ahmed, S., & Sreedharan, J.	2013	Quantitative	United Arab Emirates

13	University in the United Arab Emirates.				
	Stress and coping styles in Japanese Nursing students	Kanae, Y.	2012	Quantitative	Japan
9	Stress, coping and satisfaction in nursing students.	Gibbons, C., Dempster, M., & Moutray, M.	2011	Qualitative	United Kingdom
2	The role of religiosity, coping strategies, self-efficacy and personality dimensions in the prediction of Iranian undergraduate rehabilitation interns' satisfaction with their clinical experience	Mirsaleh, Y., Rezai, H., Kivi, S., & Ghorbani, R.	2010	Quantitative	Iran
20	Sources of stress and psychological morbidity among undergraduate physiotherapy students.	Walsh, J., Feeney, C., Hussey, J., & Donnellan, C.	2010	Quantitative	Ireland
6	Psychological distress among nursing, physiotherapy and occupational therapy students: A longitudinal and predictive study	Nerdrum, P., & Rustoen, T.	2009	Qualitative	Norway
6	Hong Kong baccalaureate nursing students' stress and their coping strategies in clinical practice.	Chan, C., So, W., & Fong, D	2009	Quantitative	Hong Kong
	Stress and eustress in nursing students.	Gibbons, C., Dempster, M., & Moutray, M.	2008	Qualitative	United Kingdom
8	Stress sources in nursing practice. Evolution during nursing training	Zupiria Gorostidi, X., Huitzi Egilegor, X., Jose Alberdi Erice, M., Jose Uranga Iturriotz, M.,	2007	Quantitative	Spain

	Eizmendi Garate, I., Barandiaran Lasa, M., & Sanz Cascante, X.					
9	Experienced stressors and coping strategies among Iranian nursing students	4	Seyedfatemi, N., Tafreshi, M., & Hagani, H.	2007	Quantitative	Iran
15	Study of stress level in occupational therapy students during their academic curriculum		Kumar, S., & Jejurka, K.	2005	Quantitative	India
	Perceptions of stress, time management and coping strategies of speech pathology students on clinical placement		Lincoln, M., & Adamson, B.	2004	Quantitative	Australia

FINDINGS

The findings are presented according to sources of stress and coping strategies utilized by students.

Sources of stress

Three major sources of stress were identified amongst health science students, which included academic-related stress, interpersonal/social stress, and stresses from clinical training. Several studies identified academic stress to be the most significant stressor experienced by health science students⁶⁻⁸. Students described examinations and an increased workload as the major factors contributing towards academic stress⁹⁻¹¹. Moreover, academic stress was found to increase over the four-year occupational therapy course, with final year students perceiving it to be the greatest source stress¹².

Interpersonal or social stressors were cited in 15 articles within this review^{6,10,13-24}. Significant social stressors that were highlighted in the studies were interpersonal relationships with family and peers^{6,22}. Another study that focused on the perceptions of stress and coping used by Saudi Arabian nursing students identified relationships with hospital staff to also be stressful²⁵. Many nursing students felt that they were not fully acknowledged or respected by the hospital staff, which led to negative interactions and their elevated stress²⁵.

Stress from clinical training was emphasised by 13 out of the 33 studies^{6,13,16,17,19,24-31}. Poorly staffed clinical departments, fast-paced wards and initial clinical placements were all factors

contributing towards the stress of students²⁷. High level patient care was also a prevalent stress factor amongst nursing students^{13,16,19}.

Other stressors that were reported less frequently included personal issues, financial concerns, environmental factors, psychosocial aspects, and a lack of students' professional skills. Personal stressors primarily consisted of students being stressed about their personal health-related conditions and illnesses⁶. Financial issues were cited in Gibbons, Dempster & Moutray²⁷, where students revealed they had to work part-time during their undergraduate studies to support themselves. With respect to environmental factors, students described noisy surroundings as stressful¹³.

In terms of psychosocial stressors, final year physiotherapy students described the suffering and death of their patients as a traumatic experience³². Another study revealed that high parental expectations and decreased time to participate in leisure activities contributed to the students' psychosocial stress⁹.

A lack of professional knowledge was reported in six out of the 33 articles^{13,16,19,22,24,26}. Students felt they lacked the necessary skills, and that clinical training was not always sufficient³³. Other stressors identified in this review were concerns about postgraduate opportunities and career choices⁶. The prevalence of the stressors across the studies is illustrated in Figure 2 below.

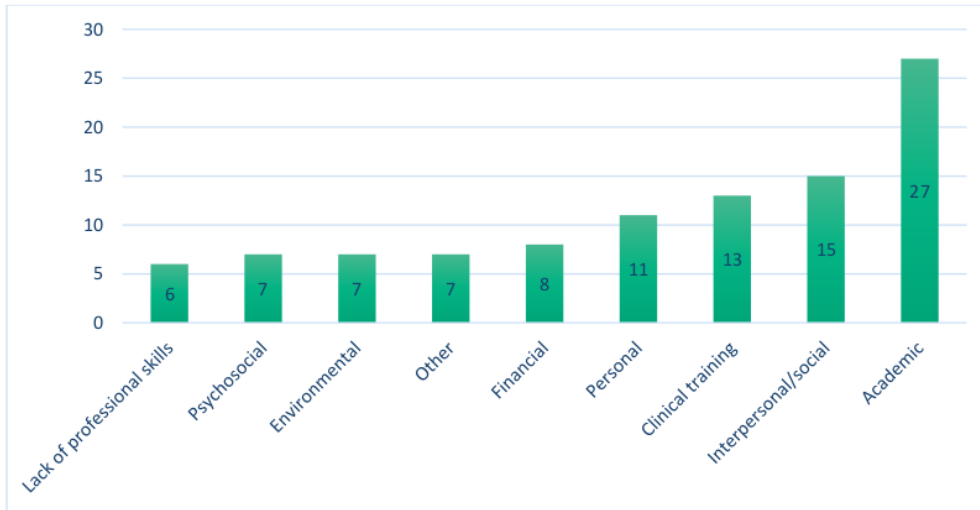


Figure 2: Sources of stress amongst health science students

Coping strategies utilised by students

Students utilized various strategies to cope with increased stress. Several studies identified problem-focused coping to be the most frequently used coping strategy^{12,19,24}. Govender *et al*¹² also found that 96, 2% of occupational therapy students, between first to fourth year, used problem-focused coping when dealing with stressful situations¹². This method of coping involved planning, analysing potential solutions and taking the necessary actions to solve the problem.

Avoidance coping was the next significant coping strategy. It involved students waiting for others to solve their problems, or avoiding teachers, and having difficulties in clinical training³⁴. Some of these difficulties included the high quality of services expected within a hospital setting and unfamiliar clinical cases³⁴.

Seeking social support was also mentioned in eight studies^{12,15,17,20,23,28,32,34}. This entailed students finding comfort in communicating about their problems with family and friends³⁴. This was cited in another study which identified 61.7% (n =817) of nursing students from a cohort of 1324 students, who sought social support from their friends as a means of coping¹⁷. Other coping methods included emotion-based coping, remaining positive, transference, other non-specific methods such as remaining positive or optimistic^{16,26}, and substance use. Figure 3 represents the prevalence of various coping strategies identified in this review.

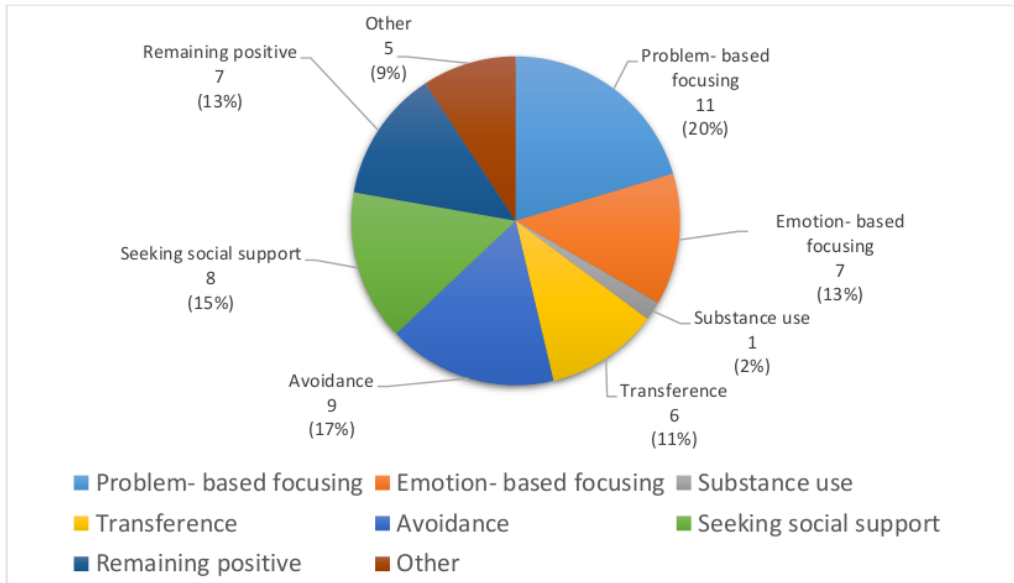


Figure 3: Pie graph showing coping strategies of students

DISCUSSION

The discussion will be structured under two subsections, namely sources of stress among health science students and the coping strategies of health science students.

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Sources of stress among health science students

Studies have revealed that health science students experience significantly higher levels of stress as compared to other students³⁵. Numerous sources of stress were identified, with academic related stress being the most prevalent amongst health science students⁶⁻⁸. Examinations and an increased workload were among the key factors leading to high levels of stress⁹⁻¹¹. Increased academic stress was further attributed to students' poor time management³⁶; which was reiterated by Mohamadkhani *et al* who stated that efficient time management skills were an important predictor for academic performance, reduced stress levels and increased productivity³⁷.

Negative relationships with faculty members was identified as one of the key social stressors⁶. A poor relationship between students and staff can result in decreased academic performance, as students find it difficult to approach lecturers and to seek support. Social stress was cited in Ahmed *et al*.¹³, which further identified the competitive relationships amongst peers as stressful. These competitive interpersonal relationships have been found to negatively impact on students' available support systems. Family conflicts were also found to compound the stress experienced by students, and served to reduce their support networks²⁰.

Gomathi *et al*.³⁶, reported that the main psychosocial stressors experienced by students were increased parental expectations, insufficient recreational time, and anxiety about the future. Anxiety regarding their future included worries of potential unemployment. Psychosocial stresses further involved difficulties in processing the death or suffering of their patients³². This stressor was further explained by Peters *et al*.³⁸, who suggested that health providers are constantly exposed to the death and suffering of their patients, which can serve as a subconscious reminder of their own mortality.

Students' health-related conditions or illnesses were a major contributing factor to their stress^{6,13}. Students with chronic illnesses, or those who underwent surgeries found it particularly difficult to manage these additional stressors⁶. Many were concerned about the impact of these health-related conditions on their academic performance. Binge eating disorders and obesity were significant health conditions experienced by first generation students³⁹. These findings were in stark contrast in developing countries such as South Africa, where many students presented with food insecurity issues and resultant malnutrition⁴⁰.

Moreover, health science students identified clinical training to be stressful²⁷; where understaffed clinical settings, high turnover wards and clinical placements were all contributors to stress. Garber *et al.*⁶ described fieldwork rotations to be stressful amongst pharmacy students, who were concerned about their performance during these experiential rotations.

Environmental factors could also induce stress in university students. Some of the environmental stressors cited included noisy environments and the climate within the university and clinical settings. Servilha & Delatti⁴¹, highlighted that increased noise was a major stressor experienced by undergraduate health science students that impacted negatively on their studying.

Financial stress was another source of stress identified within this integrative review. One of the studies further indicated the need for students to secure part-time employment to alleviate their financial burdens²⁷. University students with financial stress are likely to present with decreased academic performance, as they struggle to balance the issues of needing money, working, and completing their academic-related tasks⁴². This continues to be a problem particularly in developing countries, including South Africa, with many students on financial aid. Financial stress was further emphasized by Dominguez-Whitehead⁴⁰ who highlighted that South African university students are subjected to poor nutrition and increased levels of hunger because of limited funds.

Lastly, a lack of professional knowledge was the least reported stressor within this integrative review. This stressor was characterized by students feeling that clinical training was inadequate, as they lacked the necessary skills²². Students were often worried about not being fully competent within the practical or clinical domain. The coping strategies of health science students identified in this integrative review will be discussed next.

Coping strategies employed by health science students

Health science students utilized adaptive and maladaptive coping strategies. Several articles found that those with high levels of resilience, life fulfilment, and optimism and hopefulness tended to adopt the positive and adaptive coping strategies as task-oriented and active coping, whilst those with high levels of pessimism were likely to use the maladaptive strategies as disengagement, denial, and venting of emotions. These coping mechanisms will have multiple negative or positive effects on a university student who has multiple stressors beyond only academics.

As depicted in Figure 3, health science students were more likely to utilize problem-focused coping (20%)^{12,16,19,23-26,34,36,44,45}, in contrast to emotional- focused coping (13%)^{12,15,23,32,36,44,46}. Problem focused coping involves taking control of the stress and either seeking information or

assistance in handling the situation, whereas emotional- focused coping included avoidance (17%)^{16,23,24,26,28,32,34,36,45} and seeking social support^{12,15,17,20,23,28,32,34} (15%).

Adaptive coping strategies

Problem-focused coping was cited in eleven out of the 33 articles included in this integrative review^{12,16,19,23-26,34,36,44,45}. A number of students were reported to be engaged in problem-focussed methods of coping where students actively sought ways to cope with different stressors. This included the development of solutions to their problems and the seeking of assistance by attending student support services²⁵.

Remaining positive was cited in seven out of the 33 articles included in this integrative review^{12,16,24,26,34,36,45}. Students were found to adopt a positive attitude and mind-set in response to stressful events, thus indicating the use of hopefulness and optimism as a coping style⁴⁵. A positive mind-set is likely to prevent students from resorting to helpless or submissive coping styles.

Emotion-focused coping was cited in seven out of the 33 articles included in this integrative review^{12,15,23,32,36,44,46}. Emotion-focused coping included self-blame, wishful thinking and keeping to oneself.

Another adaptive coping style identified in this integrative review included seeking social support. Support from family and friends is crucial in enabling a student's successful integration into university life. This was reiterated by a study which found that a poor support network is a strong predictor of mental distress⁴⁷.

Maladaptive coping strategies

Students who engaged in avoidance behaviours often participated in activities such as the playing of video games, substance use and procrastination. These students were reported to rarely identify the positives in a situation²³. This indicates that students with a negative approach to stressful circumstances are more likely to utilise avoidant styles of coping.

A study conducted by McCombie *et al*²⁰ further suggested that some students engage in the substance use to cope with stress. Moreover, problematic family relationships that result in a lack of social support, could result in the increased consumption of substances.

The marked difference ¹⁸ between problem-focused and emotion-focused coping, is that problem-focused coping utilises an active approach and involves planning. Whereas in emotional-focused coping, acceptance factors eliminates the stressor through the manipulation of the environment and situation, one develops specific reactions and responses

to help deal with the stressor, or seeks a distraction from the stressor²³. With emotion-focused coping, the stressor is not analysed or resolved, but rather indirectly managed.

LIMITATIONS

The limitations in this study included the wide range of articles that were used, which included both qualitative and quantitative studies. The combination of various methodologies from this range of articles, can contribute to a lack of rigour in an integrative review. There are also concerns related to the merging of empirical and theoretical reports as has been done in this integrative review due to the wide variety of qualitative and quantitative articles, which could contribute to lack of thoroughness.

4 CONCLUSION

This integrative study was conducted with the aim of determining stressors and coping strategies utilised by a cohort of health science students within undergraduate programmes. It indicated that health science students are subjected to several stress factors namely, academic related stress, social stress, personal factors, financial worries, and stress as result of clinical training. Other stress inducing factors included environmental influences, psychosocial factors, and a lack of professional knowledge. While most students reported the use of problem-focused coping in response to increased stress, there were still some who engaged in maladaptive coping styles, such as substance use and other avoidant behaviours. The multitude of stressors and maladaptive coping necessitates the need for support structures to be accessible to students, who must provide timely support. The implementation of online semester check-ins would be beneficial in allowing support services to easily identify students requiring additional support. Students' mental health and overall wellness are predictors for how well an individual will be able cope in tertiary education, and specifically with the demands of the health science programmes.

RECOMMENDATIONS

These were the recommendations that emerged from the study.

- Health science degrees are associated with an increased workload. Therefore, there is a need for health science disciplines to review their course structures and number of assessments.
- The awareness and accessibility of student support interventions should be emphasised during first year orientation programs. Thereafter, student support services could send out electronic stress questionnaires to students. This could be conducted biannually, at the

beginning and end of the academic year, allowing support services to screen for any students who may be struggling, and ensure timely support.

- Students who experienced the death of a patient can be referred to a psychologist or student counsellor to assist them in coping with this loss.
- Workshops aimed at addressing budgeting skills would be useful in assisting students to better manage their finances, and reduce financial stresses.
- The clinical supervisor-student bond may be strengthened during annual workshops to ensure students are well supported during their clinical fieldwork blocks. This was reiterated by King, Edlington & Williams⁴³, who stated that both the student and the clinical supervisor required preparation or training to ensure effective clinical supervision.

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