The Coping Strategies of Medical Students in the Shift to Online Learning Setting

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ABSTRACT

Background: The educational landscape has undergone a paradigm shift with the onset of the pandemic, necessitating the adoption of online learning as the new norm. This transition has wielded profound effects on various aspects of students' lives, particularly the adjustment from traditional classroom setups to virtual platforms. Within the medical realm, students face notable challenges in adjusting to this shift, given the practical nature of their field. Coping mechanisms play a pivotal role in influencing individuals' well-being and health. This study aimed to explore the diverse coping strategies employed by medical students as they navigate the transition from conventional face-to-face instruction to an online learning environment.
Methods: The research employed a descriptive, cross-sectional approach to identify effective coping strategies that mitigate the stress associated with the transition to online learning among medical students. Convenience sampling served as the chosen methodology, utilizing the validated and reliable 28-item self-report questionnaire developed by Charles Carver, known as the Brief Coping Orientation to Problems Experienced (COPE). This tool has undergone validation through numerous research investigations within the local context of the Philippines. The questionnaire aims to assess both effective and ineffective coping strategies in response to stressful life events. Data collection involved the administration of the survey via Google Forms, with responses synchronized to Google Sheets. Statistical analysis of the gathered data was conducted using Google Sheets, serving as the primary statistical software to calculate the average scores of respondents' answers.
Results: A predominant number of participants embraced problem-focused coping mechanisms to address challenges and stressors. The evaluation employed a Likert Scale rating system, ranging from 1 (indicating minimal engagement) to 4 (indicating extensive application). Among these strategies, problem-focused coping garnered the highest overall average score of 3.13, signifying its prevalent adoption. Emotional focus ranked next with an average score of 2.89, while avoidant coping strategies exhibited the lowest average score of 2.25. Notably, this coping strategy hierarchy persisted consistently across all academic year levels.
Conclusion: Medical students exhibit a diverse array of coping strategies when navigating the transition to online learning. The coping strategy most frequently employed is problem-focused coping, encompassing planning, active coping, and positive reframing. Following closely, emotional focus comes into play, with acceptance emerging as the predominant and potent coping strategy, highlighting students' inclination to embrace and acknowledge natural distress. Conversely, the least utilized coping strategy is the avoidant approach. This coping strategy hierarchy remained consistent across different year levels of medical education.

Key words: coping strategies, online learning, Coping Orientation to Problems Experienced (COPE), medical students

The emergence of online learning as the main educational mode since the pandemic's advent has significantly transformed the educational landscape. This transformation has governed substantial repercussions across various dimensions of students' lives, particularly concerning the shift from traditional physical learning to virtual platforms. Particularly for medical students, this shift poses a unique challenge, given the hands-on nature of their curriculum. Coping mechanisms, encompassing cognitive, emotional, and behavioral strategies, play a crucial role in navigating the stressors associated with medical schooling, encompassing high expectations, rigorous coursework, and the abrupt transition to online learning environments.

Coping mechanisms hold considerable sway over individuals' well-being and overall health, influencing their subjective sense of contentment. In this context, this study aimed to ascertain the predominant coping strategies employed by medical students during their adjustment to the swift transition from conventional face-to-face classes to the online learning landscape.

Studies highlight the impact of elevated anxiety levels on university students' psychological well-being and academic performance in the pandemic.[1] Stress has been found to detrimentally affect decision-making abilities, academic achievements, and empathetic capacities, all of which are integral to forming strong patient relationships.[2] It's noteworthy that the efficacy of coping strategies can modulate the adverse impact of stress on academic performance, and some strategies might inadvertently yield less favorable outcomes. Lai, et al. underline stress's adverse influence on the learning environment. Multiple investigations indicate that remote learning-induced stress significantly impacts students' lives, with factors like familial issues, academic overloads, research demands, lackluster support services, admission concerns, and financial constraints contributing to the stress. Notably, medical students exhibited a higher prevalence of suicidal ideation compared to their qualified counterparts, underscoring the urgency of educational restructuring in the pandemic era. Reevaluating traditional medical education methods and bolstering students' crisis readiness could fortify their resilience and ease the transition from student to practicing physician.[3]

In the realm of psychological resilience and coping mechanisms, Wu, et al.'s study on Chinese undergraduate students revealed that females and medical students are more prone to adopting positive coping strategies compared to their male and non-medical counterparts.[4] Strengthening psychological resilience was correlated with adopting positive coping styles, indicating a potential avenue for enhancing students' mental well- being. Conversely, Barrot et al.'s research in 2021 highlighted the primary challenges introduced by the new learning paradigm, with students citing difficulties in their home- based learning environment.[5] Resource management, help-seeking, technical skills enhancement, time management, and control over the learning environment were the most frequently employed coping strategies. In another instance, a study among doctors- in-training at the University of Geneva disclosed the pandemic's adverse effects on their motivation and concentration due to suboptimal study conditions. Interestingly, students recruited to aid hospitals during staff shortages reported positive changes in self- perception, attesting to the impact of real-world exposure on their professional identity.[6]

While local studies have explored challenges and coping mechanisms among students, particularly in the context of online learning[7,8] limited research has specifically focused on identifying coping strategies among medical students.

This research seeks to identify the coping strategies harnessed by FEU-NRMF medical students to navigate the stress brought about by the transition to online learning. It specifically aims to compare coping strategies across different academic year levels and ascertain the most prevalent strategies within each level. Given the central role of online learning in today's education, our findings will be invaluable to the school, administration, and students alike. The data presented will empower authorities to safeguard student well-being by informing effective coping strategies. This information can serve as a foundational framework for the formulation of school programs and policies aimed at enhancing and reinforcing coping mechanisms beneficial to most students.

MATERIALS AND METHODS

Study Design, Population, and Inclusion Criteria

A descriptive, cross-sectional research design was employed to ascertain the efficacy of coping strategies in mitigating stress associated with the

transition to online learning among medical students. The study focused on the population of 1st to 3rd year medical students enrolled at FEU-NRMF during the academic year 2022-2023. Participants included officially registered regular students, while those with irregular academic loads, who applied for authorized withdrawal, or were on leave were excluded from the study. A conservative approach was adopted for estimating the sample size. The minimum sample size required was determined based on an expected proportion of 50%, a confidence level of 95%, and a margin of error of 5%, yielding a sample size of 385 participants.

Sampling Technique

The recruitment of respondents was conducted through each year level presidents and coordinators via posting of posters with an attached invitation link to participate in the study. It was posted across online platforms such as Facebook and Telegram to achieve the number of respondents needed for the study. The link directed the eligible participant to the Google Form containing the informed consent form and the questionnaire itself.

Data Collection

The data underwent processing and encoding using Google Forms, subsequently generating a corresponding Google Sheet. The execution of this study was subjected to review and obtained approval from the FEU-NRMF Institutional Ethical Review Committee (IERC). All participating respondents were informed about the study's objectives and voluntarily agreed to take part. One particular limitation of this research pertains to sample size, as larger samples offer more precise mean values, unveil potential outliers that could distort data within smaller samples, and decrease the margin of error. Additionally, due to its descriptive nature, this study cannot establish causal relationships from associations, given that it represents a one-time measurement of exposure and outcome. To corroborate and broaden these findings, further multi- institutional research is imperative.

Assessment Tool and Measurement Process

The 28-item self-report questionnaire by Charles Carver that developed the certified and valid Brief Coping Orientation to Problems Experienced (COPE),[9] which has been evaluated by many researcher investigations in the Philippines. It is a self-report questionnaire designed to measure effective and ineffective ways to cope with stressful life events. The content of the survey is composed of questions that may be useful in coping with such stressors that contribute to the shifting of class from face-to-face to online setting. Each item was graded based on a Likert scale which ranged between 1 ("I haven't been practicing this at all.") to 4 ("I've been conducting this a lot."). The scale is frequently used in health-care settings to assess how patients are emotionally reacting to a difficult situation. It may be used to assess how someone is dealing with a variety of adversities, such as a cancer diagnosis, heart failure, injuries, assaults, natural catastrophes, financial hardship, or mental illness. In therapeutic settings, the scale is useful for understanding how someone responds to stresses in both beneficial and negative ways. The scale can determine someone's primary coping styles with scores on the following three subscale: (a) Problem-Focused Coping (b) Emotion-Focused Coping(c) Avoidant Coping.

Data Analysis

The data underwent processing and encoding using Google Forms, subsequently generating a corresponding Google Sheet. Univariate analysis was employed using Google Sheet estimation of average of scores.

RESULTS

Out of 399 respondents, 116 were male (29%) and 283 were female (71%). Among them, 135 (33.84%) were 1st year medical students, 132 (33.08%) were 2nd year, and 132 (33.08%) were 3rd year. (Table 1)

Table 1. Demographic data of respondents towards the coping strategies of medical students in the shift to online learning setting.

	N (%)
Sex	
• Male	116 (29%)
• Female	283 (71%)
Year-Level Enrolled	
• 1st Year	135 (33.84%)
• 2nd Year	132 (33.08%)
• 3rd Year	132 (33.08%)

The use of Coping strategies (Table 2), presenting the highest total average score of 3.13 for problem focused. This is followed by emotional focus, with a total score of 2.89, and the lowest score for avoidant coping with a total score of 2.25. Each year level has the same ranking of use of the coping strategies.

Table 2. The three subscales of coping strategies of medical Students in the Shift to Online Learning Setting.

	Average Score (1 to 4)			
	1st Year	2nd Year	3rd Year	Total
Problem Focused	3.15	3.07	3.18	3.13
Emotional Focused	2.83	2.87	2.97	2.89
Avoidant Coping	2.19	2.23	2.32	2.25

Regarding the utilization of predictive positive outcomes (Table 3), the analysis reveals that within the set of employed problem-focused coping strategies, the planning strategy garnered the highest score at 3.25. This was trailed by active coping, scoring 3.21, followed by positive reframing with a total of 3.20. The least employed strategy within this category was the utilization of informational support, registering a score of 2.87. Notably, planning and active coping secured the top two positions in the ranking across various academic year levels. Conversely, the use of informational support was least favored among the year levels as a preferred coping strategy.

Within the emotional-focused strategies (Table 4), acceptance emerges as the prevailing coping mechanism, with an average total score of 3.42 among students. This is closely trailed by emotional support (3.09), humor (2.81), self-blame (2.76), and religion (2.71), with venting (2.53) recording the least adoption. The order of acceptance and emotional support remains consistent in their ranking across different academic year levels, securing the top two positions respectively. Nevertheless, the utilization of humor, self- blame, religion, and venting displays variation among the second and third-year levels. Specifically, 2nd-year students place religion as their third most employed strategy, followed by humor, self-blame, and venting. On the other hand, 3rd-year students prefer humor, self-blame, and venting over religion as their preferred coping mechanisms.

Table 3. The problem focused coping strategies of medical students in the shift to online learning setting.

	Average Score (1 to 4)			
	1st Year	2nd Year	3rd Year	Total
Planning	3.27	3.15	3.32	3.25
Active-Coping	3.26	3.15	3.21	3.21
Positive Reframing	3.22	3.13	3.24	3.20
Use of Informational Support	2.84	2.83	2.94	2.87

Table 4. The emotion focused coping strategies of medical students in the shift to online learning setting.

	Average Score (1 to 4)			
	1st Year	2nd Year	3rd Year	Total
Acceptance	3.39	3.39	3.48	3.42
Emotional Support	3.1	3.02	3.15	3.09
Humor	2.73	2.74	2.95	2.81
Self-blame	2.69	2.66	2.94	2.76
Religion	2.56	2.94	2.62	2.71
Venting	2.49	2.46	2.65	2.53

Among the avoidant coping strategies (Table 5), self-distraction secures the highest ranking, garnering an average score of 3.27. It is followed by behavioral disengagement with a score of 1.92, substance use

Table 5. The avoidant coping strategies of medical students in the shift to online learning setting.

	Average Score (1 to 4)			
	1st Year	2nd Year	3rd Year	Total
Self-distraction	3.29	3.23	3.28	3.27
Behavioral Disengagement	1.8	1.95	2.01	1.92
Substance Use	1.6	1.7	1.73	1.68
Denial	1.43	1.42	1.61	1.49

with a score of 1.68, and lastly, denial, which registers the lowest score of 1.49. The order of self-distraction, behavioral disengagement, substance use, and denial remains consistent across all three academic year levels. The data underscores that, in terms of avoidant coping, a significant proportion of respondents resort to alternative activities like watching TV, reading, sleeping, and similar pursuits to divert their attention from the stress they are encountering.

DISCUSSION

In the abrupt transition to online learning, medical students employed a diverse array of coping strategies. Among these strategies, problem-focused coping emerged as the prevailing approach (3.13), closely trailed by emotion-focused coping (2.89), while avoidant coping (2.25) was the least preferred strategy. Remarkably, this coping strategy hierarchy remained consistent across different year levels of medical education.

Problem-focused coping strategies involve actively addressing the root causes of stressors and challenges. These strategies empower individuals to take practical steps to manage difficulties.[10] Emotion-focused coping emphasizes managing one's emotional response to stressors. This approach involves regulating emotions and seeking emotional support from others.[11] Avoidant coping strategies involve attempting to distance oneself from stressors, often through denial or distraction. While this approach might offer temporary relief, it's generally considered less effective in the long term.[12] The consistent ranking of coping strategies across various year levels suggests a certain level of universality in the strategies chosen by medical students to navigate the challenges posed by the shift to online learning. There was no significant difference between the different strategies utilized by medical students under the 3 approaches across the year levels.

Coping is a common reaction of medical students to the perceived stress of transitioning to an online learning environment. According to research by J Li, et al (2022), high levels of student stress have long been linked to understanding of health care profession curriculums.[2] Problems that are readily solved are actively addressed by taking fast and effective action. Planning is a problem-solving coping strategy that entails creating plans and strategies to overcome obstacles. Requesting assistance and guidance is one example of how to use informational support. When a crisis persists or looks intractable, such as dealing with permanent loss or a failed relationship, the emphasis of coping turns to one of emotion. Internal emotional coping is a more cognitive or psychological reaction. Acceptance focuses on learning to live with the situation and accepting reality as it is. Positive reframing, on the other hand, is a coping strategy that focuses on the positive aspects of a challenging circumstance. Finally, avoidant methods may be used because they are simple to implement and give a short resolution, but they might be detrimental over the course of time. It is normal to deal with challenges by employing a variety of coping methods to reduce the psychological consequences of the shift to online learning, which has been aggravated by the pandemic.

Within this investigation, a notable majority of participants opted for problem-focused strategies when confronting challenges or stressors. It is evident that medical students exhibit a relatively sophisticated disposition in their coping approaches. Given the pivotal role acknowledged for the medical field amid the pandemic[6], medical students attribute substantial importance to their professional identity. This recognition prompts a proactive inclination toward employing problem-focused coping strategies as an effective mechanism. Problem-focused coping entails a problem-solving approach in which individuals directly address challenges or stressors to mitigate or eliminate them. For instance, a student experiencing stress in school might take steps to establish firmer boundaries between their academic and personal life, a tactic known as active-coping. The application of exercise can be categorized as a problem-solving coping mechanism, particularly under active-coping and planning. A study conducted by Garber (2017) delved into this aspect, revealing that 75% of respondents reported a degree of increased activity. Among the coping strategies[1], planning emerged as the preferred approach by most respondents.

Positive reframing involves adopting a more positive perspective on negative or challenging situations, reframing them as valuable lessons or opportunities for growth. Practicing self-care techniques, such as mindfulness meditation, exercise, and hobbies, played a pivotal role in mitigating stress and bolstering mental well-being among medical students. These strategies facilitated stress management, anxiety reduction, and the maintenance of focus, particularly amid the challenges posed by the transition to online learning, as highlighted in the research by Sood et al. (2020).[13]

In the work by Barrot, et al. (2021), an exploration was undertaken concerning the challenges of online learning faced by students during the pandemic and their coping strategies in our local context.[5] Through a mixed-methods approach, the study unveiled the diverse nature and extent of college students' online learning challenges. Among these, the most prominent challenge pertained to the home learning environment, while technological literacy posed the least challenge. The study further highlighted that the COVID-19 pandemic had a profound impact on both learning quality and students' mental well-being. In terms of coping strategies, students primarily employed resource management, help-seeking, enhancing technical prowess, time management, and exerting control over their learning environment.

Recognizing the importance of effective time management, medical students emphasized the need for a structured daily routine. Creating dedicated study intervals, incorporating breaks, and allocating leisure time contributed to upholding a sense of equilibrium and normalcy in their lives. This approach not only fostered organization but also mitigated stress, as observed in research by König et al. (2020).[14]

Adapting to the online learning paradigm, students enhanced their study techniques by harnessing digital resources, pre-recorded lectures, and interactive online platforms. Developing adeptness in online learning, including techniques for virtual lecture note- taking, resulted in heightened engagement and comprehension, as emphasized in the study by Bernard, et al.[15]

A study by Wurth et al. (2021) examined the perspective of medical students at the University of Geneva concerning the impact of the epidemic three months into its onset.[5] Employing an online self-administered survey, the study disclosed that a significant proportion of respondents (58.8%) felt a sense of isolation since the start of the epidemic. Frequently cited coping mechanisms included engaging in physical exercise and fostering increased communication with loved ones which is consistent with the findings of this study.

Engaging in emotion-focused coping involves managing emotional reactions to stressors. This approach centers on regulating emotions rather than resolving the issue itself, emphasizing emotional control and response management. An example of emotional- focused coping is acceptance, which emerged as the most frequently employed coping strategy among the respondents. This suggests that a significant portion of participants gravitated towards embracing natural distress. Emotional support, ranking as the second most prevalent emotion-focused coping style, entails expressions of empathy, affection, and compassion. Enhanced communication with loved ones through increased telecommunications emerged as an accessible coping strategy for medical students[16] affirming that robust emotional support networks aid in effective emotional management.

Acknowledging the significance of maintaining social bonds, medical students actively sought virtual avenues for connecting with peers and faculty members. Participation in virtual social events, engagement on discussion boards, and active involvement in online forums worked to counter feelings of isolation and nurture a sense of belonging within the medical community. Romero-Hall, et al. (2020)[17] underscored these aspects in their research. This is highlighted with the support services by the Guidance Counseling Office (GCO) at the medical institution, which offers an array of services tailored to students' coping needs. Amidst the pandemic, the GCO introduced an online platform designed to sustain a supportive connection with students during crises. The measures adopted encompass follow-ups with students, consultations with parents or guardians, collaborative discussions with faculty members, and engagement with specialists, psychiatrists, and psychologists. Through this initiative, they identified prevalent mental health challenges faced by students. According to GCO statistics, an estimated average of 75 students benefited from these projects between 2020 and 2022.

Humor, the third most utilized emotion-focused coping strategy, offers a lighter perspective, effectively employing laughter to confront challenges. This approach resonates with Freud's psychodynamic viewpoint, portraying humor as a potent defense mechanism that helps individuals confront issues and alleviate stress (Penson et al., 2007). The study by Savitsy, et al. (2022) affirmed the stress-moderating effect of humor, linking it to reduced anxiety levels among nursing students during the pandemic.[18] Yaprak, et al. (2018) explored humor as a personal trait fostering resilience and well-being through cognitive evaluations of stressful experiences.

Self-blame, ranking fourth in emotion-focused coping, involves holding oneself accountable for distressing events. This internal attribution can significantly influence emotions and behaviors in both immediate and subsequent stressful circumstances.

Religion and turning to spiritual beliefs for comfort, support, and guidance emerged as an effective approach for managing stress. In Korea, Kim and Park (2018) found that prayer meetings and meditation provided strength and tranquility, aiding academic stress management.[19] Similarly, in Sri Lanka, engaging in religious activities, including going to places of worship and seeking divine assistance, emerged as the most utilized coping strategy for stress arising from examinations.[20] Imperatori (2019) demonstrated positive links between religious coping and active coping as well as positive reframing.[21] Furthermore, religious coping mechanisms were associated with reduced perceived stress (Arévalo et al., 2008), while spirituality correlated with improved well- being and reduced stress (Peres et al., 2018).

Venting, the least employed coping strategy, allows individuals to express their worries, offering an avenue to release emotions rather than internalizing them. Achieving an optimal blend of emotion-focused coping techniques is essential for effective stress release and relief.

Avoidance coping entails cognitive and behavioral strategies aimed at evading direct confrontation with unpleasant demands. Individuals adopt avoidance coping to sidestep distressing thoughts or events. The most prevalent form of avoidance coping is self-distraction, where respondents engage in enjoyable activities like watching television or exercising to divert attention from stressors (Allens et al., 2010). Abouammoh et al. (2020) similarly found self-distraction to be a common avoidant coping technique among medical students.[22]

The current study disclosed varied coping strategies employed by medical students to adapt to online learning. Problem-focused coping, particularly planning, active coping, and positive reframing, emerged as the most frequently used strategy. Emotional focus, especially through acceptance, was prominent, indicating a willingness to acknowledge natural distress. Avoidant coping was the least employed strategy. Future research should explore the influences of demographics, values, and motives on students' coping mechanisms and their impact on academic performance. This study's results can inform the development of school policies that promote effective coping strategies, tailored to individual personalities and needs. Factors like diet, lifestyle, family background, health conditions, and known diseases should also be investigated further.

The study is limited to the convenience sampling and the online data collection methods employed which can introduce several biases that could affect the generalizability and accuracy of study findings. Convenience sampling involves selecting participants who are readily available or accessible. Individuals who are more easily reachable or motivated to participate may differ in important ways from those who are not, leading to a skewed sample. Those who choose to participate might have different characteristics, attitudes, or experiences than those who do not volunteer, leading to a sample that is not representative of the broader population. Participants in online surveys might not answer truthfully or accurately due to anonymity, lack of accountability, or social desirability bias. Acknowledging the biases shall help investigators to carefully interpret the results in light of these limitations.

CONCLUSION

Medical students exhibit a diverse array of coping strategies when navigating the transition to online learning. The coping strategy most frequently employed is problem - focused coping, encompassing planning, active coping, and positive reframing. Following closely, emotional focus comes into play, with acceptance emerging as the predominant and potent coping strategy, highlighting students' inclination to embrace and acknowledge natural distress. Conversely, the least utilized coping strategy is the avoidant approach. This coping strategy hierarchy remained consistent across different year levels of medical education.

REFERENCES

1. Garber MC. Exercise as a stress coping mechanism in a pharmacy student population. Am J Pharmaceutic Educ 2017; 81(3): 50. https://doi.org/10.5688/ajpe81350
2. Li J & Che W. Challenges and coping strategies of online learning for college students in the context of COVID-19: A survey of Chinese universities. Sustainable Cities and Society 2022; 83: 103958. https://doi.org/10.1016/j.scs.2022.103958
3. O'Byrne L, Gavin B & McNicholas F. Medical students and COVID-19: the need for pandemic preparedness. J Med Ethics 2020; 46(9): 623–6. https://doi.org/10.1136/medethics-2020-106353
4. Wu Y, Yu W, Wu X, Wan H, Wang Y & Lu G. Psychological resilience and positive coping styles among Chinese undergraduate students: a cross-sectional study. BMC Psychology 2020; 8(1). https://doi.org/10.1186/s40359-020-00444-y

5. Barrot JS, Llenares II & del Rosario LS. Students' online learning challenges during the pandemic and how they cope with them: The case of the Philippines. Educ Informat Technol 2021; 26(6): 7321–38. https://doi.org/10.1007/s10639-021-10589-x
6. Wurth S, Sader J, Cerutti B, et al. Medical students' perceptions and coping strategies during the first wave of the COVID-19 pandemic: studies, clinical implication, and professional identity. BMC Med Educ 2021; 21(1). https://doi.org/10.1186/s12909-021- 03053-4
7. Barrot JS, Wozney L & Yeo M. Online learning in COVID-19: A study of university students' challenges and coping strategies. Interactive Learning Environments 2021; 1-16.
8. Ignacio A. Online classes and learning in the Philippines during the COVID-19 pandemic. Int J Integr Educ 2021;4: 1-6. 10.31149/ijie.v4i3.
9. Carver CS. You want to measure coping but your protocol's too long: Consider the brief COPE. Int J Behav Med 1997; 4: 92-100.
10. Lazarus RS & Folkman S. Stress, Appraisal, and Coping. Springer Publishing Company. 1994.
11. Folkman S & Moskowitz JT. Coping: Pitfalls and promise. Ann Rev Psychol 2004; 55: 745–74.
12. Carver CS, Scheier MF & Weintraub JK. Assessing coping strategies: A theoretically based approach. J Pers Soc Psychol 1989; 56(2): 267– 83.
13. Sood A & Sharma R. Medical students' perceptions and attitudes about mindfulness-based stress reduction: A narrative review. Cureus 2020; 12(8): e7703.
14. König C, Schütz A, Könen T & Lehr D. A longitudinal examination of the association between medical students' time management skills during the first year of medical school and their academic outcomes. Med Educ Online 2020; 25(1): 1772667.
15. Bernard RM, Borokhovski E, Schmid RF, Tamim RM & Abrami PC. A meta-analysis of blended learning and technology use in higher education: From the general to the applied. J Comp Higher Educ 2014; 26(1): 87-122.
16. Arandjelović O, Brand G & Giga S. Online peer support groups in medical education during the COVID-19 pandemic: A cross-sectional survey study. BMC Medl Educ 2021; 21(1): 1-9.
17. Romero-Hall E & Vicentini C. Social presence and interaction in online learning: A current review. Int Rev Res Open and Distri Learning 2020; 21(3): 146-69.
18. Savitsky B, Findling Y, Ereli A, Hendel T. Anxiety and coping strategies among nursing students during the COVID-19 pandemic. Nurse Educ Pract 2020 Jul;46:102809. doi: 10.1016/j.nepr.2020.102809. Epub 2020 Jun 2.
19. Park SH & Kim Y. Ways of coping with excessive academic stress among Korean adolescents during leisure time. Int J Qual Studies Health Well-Being 2018; 13(1): 1505397. https://doi.org/10.1080/17482631.2018.1505397
20. Senarath DS. Examination stress, stress management strategies, and counseling needs of college level students in Sri Lanka. J Psychol Behav Sci 2020; 8(2). https://doi.org/10.15640/jpbs.v8n2a3
21. Imperatori C, Bersani FS, Massullo C, et al. Neurophysiological correlates of religious coping to stress: A preliminary EEG power spectra investigation. Neuroscience Letters 2020; 728: 134956. https://doi.org/10.1016/j.neulet.2020.134956
22. Abouammoh N, Irfan F & AlFaris E. Stress coping strategies among medical students and trainees in Saudi Arabia: a qualitative study. BMC Med Educ 2020; 20: 124. https://doi.org/10.1186/s12909-020-02039-y