

## Problem-focused Coping Controls Burnout in Medical Students: The Case of a Selected Medical School in Kenya

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### Abstract

The consequences of burnout are dire yet little attention has been focused on it among medical students in a problem-based curriculum. The purpose of the current study was to establish the prevalence of burnout and its relationship with coping among medical students. It was predicted that the prevalence of burnout would be high and that problem-focused coping would reduce burnout while avoidant and emotion-focused coping would worsen it. A purposive sample of 182 medical students selected from a medical school in Kenya provided self-report data on coping strategies and components of burnout. A greater proportion of students suffered moderate to high burnout. Correlational analyses showed that problem-focused coping significantly lowered emotional exhaustion and the sense of reduced personal accomplishment. Emotion-focused coping significantly reduced the sense of reduced personal accomplishment contrary to the expectation. Avoidant coping elevated emotional exhaustion and depersonalization. In general, the hypothesis that problem-focused coping would ameliorate burnout was supported. It is recommended that medical students be coached on the engagement coping approaches to shield them from the adverse effects of burnout.

**Keywords:** Problem-focused coping, emotion-focused coping, avoidant coping, burnout, medical students, Kenya

### 1. Introduction

Burnout is a syndrome of emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment. Studies have depicted it as prevalent among medical practitioners, medical students, and other human service professionals. Unfortunately, it has also been associated with adverse consequences on these professionals and students. The negative consequences include, but not limited to the following: reduced job performance and productivity (Moon & Hur, 2011), predisposition to cardiovascular diseases (Melamed, Shirom, Toker, Berliner, & Shapira, 2006), diminished cognitive and academic performance (May, Bauer, & Fincham, 2015), dropping out of medical school and sleep disorders (Pagnin et al., 2013), depression and suicidal tendencies (Galan, Rios-Santos, Polo, Rios-Carrasco, & Bullon, 2014), poor empathy, less altruistic professional values and unprofessional conduct (Dyrbye et al., 2010), alcohol abuse (Jackson, Shanafelt, Hasan, Satele, & Dyrbye, 2016) and poor study engagement (Liu et al., 2018). The foregoing make burnout, an aspect of mental health, an important area to study. The current study determined the prevalence of burnout in medical students in a problem-based curriculum. It also determined how their coping skills regulate their perceived burnout to ameliorate the negative consequences of burnout.

#### 1.1. Burnout and its consequences

Burnout is a psycho-physical state of mental, emotional, and physical tiredness manifested in diminished motivation and performance, and callousness in social relationships (Pam, 2013). In the current study, emotional exhaustion (EE), depersonalization (DP), and a reduced sense of personal accomplishment (RPA) characterized burnout. EE was symptomized by feeling emotionally drained, overwhelmed, and fatigued (Leonard, 2018), DP by feeling emotionally disconnected from the people medical students care about (Mayo Clinic Staff, 2017), and RPA by feeling much less effective in studies leading to reduced academic performance (Powel, 2011).

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Burnout has adverse consequences on the academic progress of students. May, Bauer, and Fincham (2015) in a longitudinal study showed that a high level of burnout reduced students' attentional and problem-solving capacities and impaired their academic performance. Yet another study (Liu et al., 2018) showed burnout as a cause of students' poor study engagement. High incidence of dropping out or considering dropping out of academic and sports programs has also been associated with high levels of burnout (Almeida, Souza, Almeida, Almeida, & Almeida, 2016; Bask & Salmela-Aro, 2013; Isoard-Gautheur, Guillet-Descas, & Gustafsson, 2016)

In the affective domain, high burnout levels are associated with depression in students (Galan et al., 2014), higher levels of suicidal ideation (Dyrbye et al., 2008; Galan et al., 2014; van der Heijden, Dillingh, Bakker, & Prins, 2008), and lower or poor empathic dispositions of students (Brazeau, Schroeder, Rovi, & Boyd, 2010; Olson, Kemper, & Mahan, 2015; Paro et al., 2014). In the area of social functioning, high levels of burnout lead to self-destructive behaviors like abuse of alcohol (Jackson et al., 2016). On the physical health of medical students and other practitioners, burnout has been associated with cardiovascular diseases (Melamed et al., 2006), physical health complaints and sleep disorders (Kim, Ji, & Kao, 2011; Mazurkiewicz, Korenstein, Fallar, & Ripp, 2012; Peterson et al., 2008). In the realm of professionalism, reduced productivity (Dewa, Loong, Bonato, Thanh, & Jacobs, 2014), reduced job performance (Khosa, Tiriyo, Ritacco, & Lowies, 2014; Moon & Hur, 2011; Parker & Kulik, 1995), poor professional conduct and attitudes (Dyrbye et al., 2010), and increased medical errors (Shanafelt et al., 2010) have been reported among the burned-out professionals and students.

From the reported research results, burnout is costly to medical practitioners, medical students, and patients. It is necessary to establish ways of alleviating the level and effects of burnout. The current study sought to suggest the coping skills that would regulate burnout.

## 1.2. Coping

Coping is a set of cognitive, affective and/or behavioral responses to stress intended to eliminate, modify, or avoid the stressor to manage the stress (Bronnie, 2018). Coping strategies are determined by how these responses/efforts are directed to the stressor. Problem-focused coping is so labeled because the efforts are directed toward the manipulation of the stressor to manage the stress. Emotion-focused coping has the efforts directed towards manipulating the emotions associated with the stressor to control the stress (McLeod, 2015). Avoidant coping include those efforts which control stress by escaping from the stressor (Scott, 2018). Problem-focused coping said to be similar to active coping, is associated with good mental health. Emotion-focused and avoidant coping categorized as passive coping are associated with poor mental health (Snow-Turek, Norris, & Tan, 1996). I, therefore expected that problem-focused coping would relate directly with the components of burnout while both emotion-focused and avoidant coping would be inversely correlated with the components.

## 1.3. Coping and Burnout

Studies from outside Africa show that medical schools can harm students' mental health with the resulting consequences like decreased academic performance, impaired competency, medical errors, dropping out of medical school, and substance abuse (Jafari, Loghmani, & Montazeri, 2012; MacLean, Booza, & Balon, 2016). Whereas some studies have not found any variations in the coping strategies students use (Nematpour, Behrouzian, & Farashbandi, 2017) others have suggested active coping as the most commonly used strategy (Moffat, McConnachie, Ross, & Morrison, 2004). This calls for further studies to reconcile the discrepancies.

Non-African studies on how coping relates to burnout have also produced mixed results. Moffat et al. (2004) showed that variation in coping style does not influence burnout. However, Nematpour et al. (2017) suggested that as students use more effective coping, their experienced burnout reduces. Anderson (2000) specifically supported this by demonstrating that engaged coping reduces the feelings of depersonalization while increasing the sense of personal accomplishment. Disengaged coping worsens emotional exhaustion and feelings of depersonalization.

Many pieces of research from Africa have focused on constructs other than burnout albeit related to it. Nwobi, Ekwueme, and Ezeoke (2009) showed that many Nigerian medical students suffer mild to moderate depression. The students tend to cope passively and aggravate the mental state. In Ghana, support staff in higher learning institutions use active coping to manage work-stress (Azumah, 2014). This is contrary to Kagwe, Ngigi, and Mutisya's (2018) view of Kenyan Borstal teachers and Marete's (2018) findings of elderly persons taking care of HIV/AIDS children who cope passively and worsen their occupational stress and depression respectively. In Kenya, Adhiambo suggested that high school students who use active coping tend to adjust well in school. Since correlations have been suggested between burnout and depression (Galan et al., 2014), work-stress (Lin & Huang, 2014), and adjustment (Tuominen-Soini & Salmela-Aro, 2014) there is reason to believe that coping would relate inversely with burnout among medical students.

African studies that associate coping with burnout have suggested contradicting results. In the attempt to relate coping and burnout, some studies have failed to show a significant inverse relationship between the constructs (Mutisya, Khumyu, Boonyanurak, & Mainah, 2018; Naceur & Zriba, 2015). However, others have shown that nurses who use active or approach coping minimize the effect of burnout while those who use passive and avoidant coping experience more burnout (Muriithi, 2016; Van der Colff & Rothmann, 2009). Furthermore, Adhiambo (2017) determined that fourth-grade high school students tend to use emotion-focused coping more than first-grade students. They also tend to experience a reduced sense of self-efficacy compared to the first-graders. By extension, it can be argued that emotion-focused coping makes students lose faith in their ability to succeed in their academic endeavors.

#### 1.4. The Current Study

From the foregoing, there is a need to reconcile the conflicting results in coping-burnout relationships. Besides, none of the studies have considered the prevalence of burnout among medical students in an African setting and how they cope with it. The purpose of the current study was to determine the prevalence of burnout among medical students in an African setting and the influence of coping strategies on the components of burnout. Based on the reviewed literature that reports a high prevalence of burnout in medical practitioners (Kokonya et al., 2014) and the inverse relationships between coping and burnout (Narumoto et al., 2008) it was predicted that the level of burnout would be high among medical students and that problem-focused coping (PFC) would be inversely related to the components of burnout (i.e., emotional exhaustion [EE], depersonalization [DP], and a reduced sense of personal accomplishment [RPA]) and that both emotion-focused coping (EFC) and avoidant coping (AVOID) would be directly related to the components of burnout (i.e., emotional exhaustion [EE], depersonalization [DP], and a reduced sense of personal accomplishment [RPA]). The determination of the magnitudes and directions of these hypotheses could help to raise awareness of the importance of detecting burnout in medical students in Kenya and making intentional efforts in counseling them on the most effective coping strategies.

## 2. Method

### 2.1. Research design

Survey and correlational designs were used. A survey was used to get information on the number of medical students who experienced low, moderate, and high levels of burnout. A correlation was used to determine the strength and direction of relationships between the components of coping (i.e., PFC, EFC, and AVOID) and the components of burnout (i.e., EE, DP, and RPA). A negative or positive correlation value indicated that a component of coping related in an opposing or the same direction respectively with a component of burnout.

### 2.2. Participants

One hundred and eighty-two (182) medical students (Male [56%];  $M_{age} = 26.4$ ,  $SD_{age} = 8.28$ ) from a College of Health Sciences at a Public University in Kenya voluntarily participated in this study. Through purposive sampling, the participants were distributed in the various strata as shown in Table 1.

Table 1 *The Composition of the Participants across Educational and Demographic Variables*

Variable	Degree Programme						Total	
	EnvHealth		Nursing		Medicine			
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Gender								
Male	30	53.6	16	48.5	52	59.8	98	55.7
Female	26	46.4	17	51.5	35	40.2	78	44.3
Total	56	100	33	100	87	100	176	100
Study Programme								
GSSP	32	59.3	18	54.5	61	73.5	111	65.3
PSSP	22	40.7	15	45.5	22	26.5	59	34.7
Total	54	100	33	100	83	100	170	100
Year of Study								
Year2	26	45.6	14	42.4	55	59.8	95	52.2
Year4	31	54.4	19	57.6	0	0	50	27.5
Year6	=	=	=	=	37	40.2	37	20.3
Total	57	100	33	100	92	100	182	100

Note. EnvHealth = Environmental Health; GSSP = Government Sponsored Students Program; PSSP = Privately Sponsored Students Program.

### 2.3. Measures

#### 2.3.1. Coping

Measures of coping styles were obtained from an adapted Carver, Scheier, and Weintraub's (1989) coping inventory. The original Carver et al.'s instrument had good construct validity levels i.e. Optimism correlated significantly and in the expected directions with active coping,  $r = .32, p < .01$  and avoidant coping,  $r = -.34, p < .01$ . For the current study, the coping inventory correlated significantly in the expected direction with the College and University Classroom Environment Inventory,  $r = .754, p < .05$ . The perception of a better learning environment tended to encourage a better coping approach.

Cronbach's alphas ( $\alpha \geq .6$ ) and test-retest reliabilities ( $r \geq .6$ ) were acceptably high for the majority of the subscales in the original instrument. The overall adapted coping measurement had a satisfactory level of reliability,  $\alpha = .732$ . The adapted inventory consisted of 52 coping statements assessing how students respond to stressful and/or challenging events and what they do to cope with them. The items were clustered into three sub-scales to measure problem-focused coping (PFC), emotion-focused coping (EFC), and avoidant coping (AVOID).

The PFC subscale evaluated the tendency to deal with the stressful situation (Carver et al., 1989). It is defined by four items assessing the tendency to change the stressor (e.g. "I took direct action to get around the problem"), four items to assess planning the best course of action (e.g. "I thought about how I might best handle the problem"), four items measuring suppression of competing activities (e.g. "I put aside other activities to concentrate on it"), four items assessing restraint coping (e.g., "I held off doing something about it until the situation permitted"), and four items evaluating the act of seeking social support for instrumental reasons (e.g. "I asked people who had similar experiences what they did"). This subscale was scored in ascending order from 0 (I usually do not do this) to 3 (I usually do this a lot). A low score indicated that PFC was infrequently used and vice versa.

The EFC subscale assessed the management of emotions associated with stressful situations (Carver et al., 1989). It consists of four items gauging the act of seeking social support for emotional reasons (e.g. "I discussed my feelings with someone"); four items judging positive reinterpretation and growth (e.g. "I tried to see it in a different light to make it seem more positive"); four items measuring evaluative acceptance (e.g. "I accepted that it happened and that it could not be changed"); four items assessing focusing on and venting emotions (e.g. "I let my feelings out"); and four items on turning to religion (e.g. "I sought God's help). This subscale was scored in ascending order from 0 (I usually do not do this) to 3 (I usually do this a lot). A low score indicated EFC was infrequently used and vice versa.

The AVOID subscale measured the tendency to disengage both mentally and behaviorally from a problem (Carver et al., 1989). It is composed of four items measuring denial (e.g. "I acted as though it had not even happened"), four items assessing the tendency to make no effort to deal with a problem (e.g. "I just gave up trying to reach my goal"), and four items measuring the tendency to deal with emotions associated with a problem

(e.g. “I turned to school or substitute activities to take my mind off things”). This subscale was scored in ascending order from 0 (I usually do not do this) to 3 (I usually do this a lot). A low score indicated AVOID was infrequently used and vice versa.

### 2.3.2. Burnout

Maslach burnout inventory (MBI) composed of 22 items (Maslach & Jackson, 1981) was adapted to the medical school learning environment. It measures the three components of burnout - Emotional Exhaustion (EE), Depersonalization (DP), and a Reduced Personal Accomplishment (RPA). EE has 9 items describing feelings of being emotionally overstretched and tired of one’s studies (e.g. “I feel emotionally drained from my medical studies”). The 5 items in DP dimension describe unsympathetic, callous and detached response towards colleagues and/or patients (e.g. “I feel I treat patients and/or colleagues as if they were impersonal objects”). The reversed scores of the items in the Personal Accomplishment (PA) subscale determined the measures of the RPA dimension of burnout. The 8 items in the PA subscale describe feelings of capability and accomplishment in one’s studies and relationship with others (e.g. “I have accomplished many worthwhile things in my medical studies”).

According to the authors of this inventory, the overall instrument has high reliability ( $\alpha = .83$ ) with reliability coefficients for the burnout dimensions ranging from .74 to .89. It has a high convergent validity for two out of the three components of burnout: EE ( $r = .4, p < .01$ ) and DP ( $r = .57, p < .001$ ). The adapted instrument had a good construct validity ( $r = -.75, p < .05$ ) established by correlating it with the College and University Classroom Environment Inventory (Fraser & Treagust, 1986). This validity level implied that a positive perception of the learning environment was reduced the perceived level of burnout. A strong internal consistency ( $\alpha = .80$ ) was established with third-year students from the three schools in the College of Health Sciences.

The 22-item Likert type questionnaire measured each statement of feeling or attitude characterizing a burned-out student on a 7-point scale ranging from 0 (I have never experienced this feeling or attitude) to 6 (I experience this feeling or attitude every day). The scores were assigned in ascending order for EE and DP items (i.e. “I have never experienced the feeling or attitude” was assigned 0 and “I have experienced the feeling or attitude every day” was assigned 6). A higher score for EE or DP indicated a higher degree of perceived burnout. The scoring was reversed for Personal Accomplishment (PA) items (i.e. “I have never experienced the feeling or attitude” was assigned 6 and “I have experienced the feeling or attitude every day” was assigned 0). A higher score for PA indicated a stronger sense of Reduced Personal Accomplishment (RPA) hence a higher degree of experienced burnout and vice versa.

## 2.4. Procedure

The participants were selected through purposive sampling from the three schools in a College of Health Sciences at a university in Kenya. The instruments to measure demographic data, the components of burnout, and coping were sent to them through their class representatives to complete at their convenience. The responses were returned through the class representatives within a specified period.

## 3. Results

### 3.1. Response rate

The response rate was close to 100% for each of the degree programs (i.e., the School of Environmental Health [95%], the School of Nursing [99%] and the School of Medicine [99%]). A few respondents did not return a complete set of responses. Thus, correlation coefficients could not be computed for the whole sample in some cases.

### 3.2. Burnout Prevalence

Assuming a normal distribution of burnout among the medical students, the prevalence of burnout was determined by categorizing levels of burnout into three z-score bands (Table 2). About 17% of the students perceived low burnout, 66% moderate burnout, and 18% high burnout. A high proportion (84%) of the students perceived moderate to high burnout.

Table 2 *The Prevalence of Student-burnout*

Burnout	z-score band	<i>n</i>	%
Low	$-3.00 \leq z < -1.00$	30	16.7
Moderate	$-1.00 \leq z < 1.00$	118	65.6
High	$1.00 \leq z \leq 3.00$	32	17.8
Total		180 <sup>a</sup>	100.1 <sup>b</sup>

Note. <sup>a</sup>Total  $\neq$  182 because 2 participants did not return complete responses for the burnout scale. <sup>b</sup>Total percentage  $\neq$  100 because of the rounding-up errors.

### 3.3. Coping versus Burnout

The descriptive statistics (*n*, *M*, and *SD*) and the correlation coefficients (*r*) for the relationships between the coping strategies (i.e., Problem-focused Coping [PFC], Emotion-focused Coping [EFC], and Avoidant Coping [AVOID]) and the components of burnout (i.e., Emotional Exhaustion [EE], Depersonalization [DP], and Reduced Personal Accomplishment [RPA]) are displayed in Table 3.

To test the prediction that problem-focused coping (PFC) would be inversely correlated with emotional exhaustion (EE), depersonalization (DP), and a reduced sense of personal accomplishment (RPA), a Pearson's *r* correlation was run. As hypothesized, PFC correlated significantly and inversely with EE,  $r(178) = -.16, p < .05$ , and RPA,  $r(178) = -.38, p < .01$ . Even though problem-focused coping and depersonalization correlated directly contrary to the expectation, the correlation was not statistically significant,  $r(178) = -.08, p > .05$  (Table 3).

It was projected that emotion-focused coping (EFC) would be directly related to emotional exhaustion (EE), depersonalization (DP), and a reduced sense of personal accomplishment (RPA). In line with the expectation, there was a weak but positive relationship between EFC and EE,  $r(177) = .02, p > .05$ . Contrary to the expectation, EFC related significantly and in opposing direction with RPA,  $r(177) = -.38, p < .01$ . However, the inverse correlation between EFC and DP was insignificant,  $r(177) = -.05, p > .05$  (Table 3).

It was hypothesized that avoidant coping (AVOID) would be directly related to emotional exhaustion (EE), depersonalization (DP), and a reduced sense of personal accomplishment (RPA). As hypothesized, AVOID correlated significantly and directly with EE,  $r(178) = .31, p < .01$  and DP,  $r(178) = .31, p < .01$ . However, there was no relationship between AVOID and RPA,  $r(178) = .00$  (Table 3).

Other interesting results worth noting include the unexpected positive and significant relationship between PFC and EFC,  $r(177) = .65, p < .01$  and the insignificant positive relationship between PFC and AVOID,  $r(188) = .08, p > .05$ . As expected, EFC significantly and directly related with AVOID,  $r(177) = .21, p < .01$ . As expected (Vicente de Vera García & Gabari Gambarte, 2019) inter-relationships among the elements of burnout were positive and significant: EE vs. DP,  $r(178) = .59, p < .01$ ; EE vs. RPA,  $r(178) = .24, p < .01$ ; and DP vs. RPA,  $r(178) = .27, p < .01$  (Table 3).

Table 3 *The Descriptive Statistics and the Correlation Coefficients for the Relationships between the Components of Coping and the Components of Burnout*

	Descriptive Statistics			Correlation Coefficients				
	<i>n</i>	<i>M</i>	<i>SD</i>	PFC	EFC	AVOID	EE	DP
Components of Coping								
<b>PFC</b>	182	39.30	9.02	–				
<b>EFC</b>	179 <sup>a</sup>	39.78	10.39	.65†	–			
<b>AVOID</b>	180 <sup>a</sup>	11.14	7.93	.08	.21†	–		
Components of Burnout								
EE	180 <sup>a</sup>	18.71	12.53	-.16*	.02	.31†	–	
DP	180 <sup>a</sup>	6.19	6.29	-.08	-.05	.31†	.59†	–
RPA	180 <sup>a</sup>	14.69	9.62	-.38†	-.38†	.00	.24†	.27†

Note. PFC = Problem-Focused Coping; EFC = Emotion-Focused Coping; AVOID = Avoidant coping; EE = Emotional Exhaustion; DP = Depersonalization; RPA = Reduced sense of Personal Accomplishment

<sup>a</sup>Sample sizes are less than 182 because participants without the required pairs of responses were excluded from the correlational analyses.

\* $p < .05$ ; † $p < .01$

#### 4. Discussion

The results of the current study suggest that many medical students experience burnout. Moreover, the results, to a large extent, show that problem-focused coping attenuates burnout in the students whereas avoidant and emotion-focused coping aggravate it. The results from the current study on the prevalence of burnout show that a large proportion of the students suffered a moderate to a high level of burnout. This finding supports past research reports that showed high levels of burnout among various service providers (Kokonya et al., 2014; Youssef, 2016). This is not surprising given that the problem-based learning curriculum puts a lot of demand on students' resources (Moffat et al., 2004).

Problem-focused coping correlated, in opposing directions, with two of the components of burnout (EE and RPA) in line with the expectations. This was also in agreement with the past studies on burnout (Ceslowitz, 1989; Cumbe et al., 2017) and studies on constructs closely related to burnout (Snow-Turek et al., 1996). The more students perceived themselves as behaviorally engaged with the stressor (Carver et al., 1989) thus using an effective coping strategy (Dijkstra & Homan, 2016) the less they perceived themselves as emotionally fatigued. Students who perceived themselves as tending to change the stressful situation also tended to perceive themselves as having experienced a higher degree of self-efficacy in the course of their studies. In general, students who used the more effective coping style tended to experience less burnout.

Students who perceived themselves as coping by frequently dealing with emotions associated with a stressful situation (Carver et al., 1989) tended to perceive themselves as more effective in their studies contrary to previous research findings (Yang et al., 2010). Possibly, the students overrated their academic abilities to appear competent (Fisher & Katz, 2000). Though statistically insignificant, students who focused on the emotions associated with the stressor reported less cynicism when interacting with clients and/or colleagues contrary to the past findings (Thomson & Jaque, 2018). This can be explained by the effect of social desirability on the students' responses (Fisher & Katz, 2000). As expected, though statistically insignificant, emotion-focused coping worsened students' perception of emotional exhaustion (Montero-Marin, Prado-Abril, Piva Demarzo, Gascon, & García-Campayo, 2014). Generally, emotion-oriented coping did not alleviate burnout.

Avoidant coping worsened students' callousness and impacted negatively on their motivational levels consistent with past studies (Chao, 2011; Cumbe et al., 2017). However, this strategy of coping did not relate with the students' negative belief in their abilities to succeed in academic endeavors contrary to earlier findings (Cumbe et al., 2017; Muriithi, 2016). Probably, compared to nurses and oncology care providers, students being younger on average, tended to over appraise the beliefs in their ability to succeed (Cull, O'Connor, Sharp, & Tang, 2005; Fisher & Katz, 2000). In general, this less effective coping tended to worsen students' perceived burnout.

##### 4.1. Theoretical implications

These results support Lazarus and Folkman's (1984) theory of coping. Lazarus and Folkman conceptualized coping as mental and/or behavioral responses to manage internal and/or external stressors judged as overtaxing the psychological and/or physical resources of the victim. The cognitive and/or the behavioral effort one makes in the face of a stressor is negative or ineffective when it results in reduced mental wellbeing and positive or effective when it results in improved mental wellbeing. The problem-focused as positive and engagement behavioral efforts (Carver et al., 1989; Dijkstra & Homan, 2016) generally reduced burnout thus enhanced the mental wellbeing of the students. Conversely, emotion-focused coping and avoidant coping as disengaged affective and behavioral efforts respectively, worsened burnout in students thus reducing their mental wellbeing measured as burnout.

##### 4.2. Practical implications

The high prevalence of burnout among students should be a wakeup call to the stakeholders that interventional programs need to be put in place for the benefit of the students. Problem-focused coping is behavioral and cognitive engagement with a stressor. It has been shown as a more effective approach to managing burnout than avoidant and emotion-focused coping. College counselors should coach medical students in the identification of sources of stress and engage with the stressors where possible to reduce the stress consequently minimizing burnout.

### 4.3. Strengths and Limitations

Whereas the current study made important contributions to theory and practice, it had several limitations. A nonprobability sampling technic was used to select the relatively small sample making generalization of the results to the Kenyan population of medical students untenable. The correlational design could not allow a cause-effect relationship to be established. We cannot tell which variable between coping and burnout causes the other. The self-report nature of the questionnaire could not guarantee honest and accurate responses and eliminate social desirability bias. However, participants were promised anonymity and confidentiality to ameliorate this. One respondent complained the battery of questionnaires was too long. The length of the set of questionnaires could have caused fatigue which could have compromised the respondents' honesty. For the convenience of scoring, items about a component were clustered instead of being randomly distributed across an instrument. This could have led to question-order bias. Only open-access research published in English was reviewed. The claim of no research in this area could have been compromised by this limitation. All these limitations notwithstanding, the current research contributed to the body of knowledge in the research topic by demonstrating how components of coping relate with those of burnout.

### 4.4. Conclusion and Future Research

In conclusion, generally, the prediction that problem-focused coping would reduce the perceived burnout while avoidant and emotion-focused coping would worsen the perception was supported. The current research results largely supported the cognitive appraisal theory of coping and suggested that medical students should be coached on the coping approaches that help them manipulate stressors to protect them from burnout. The inherent limitations suggest areas for further research improvement including the use of probability sampling with a larger sample and more robust quasi-experimental designs to suggest a cause-effect relationship between coping and burnout.

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