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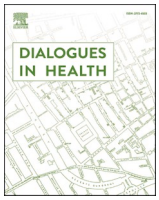
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Thriving beyond the stethoscope: Unveiling positive mental health among medical students at a University in South Africa

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ABSTRACT

Introduction: Medical education presents significant challenges for medical students' mental health. Medical students are a vulnerable group, experiencing higher rates of mental health disorders, which can have implications for their well-being and academic performance. Consequently, evaluating Positive mental health (PMH) has become significant in a contemporary and demanding society, particularly among university students.
Aim: This study aimed to assess the levels of PMH and identify the association between PMH domains and sociodemographic and health related variables among medical students enrolled at a university in South Africa.
Methods: This quantitative, descriptive, and cross-sectional survey was conducted with 144 undergraduate medical students. Data were collected using a multi-dimensional PMH instrument and a sociodemographic and health related questionnaire, from 144 undergraduate medical students. The university's Research and Ethics Committee granted ethical clearance for the study. *Results*: The data were analysed using IBM SPSS version 29. The majority of the students were older than 20 years (79.2 %, $n = 114$), had no prior history of psychiatric illness, and had not previously taken any psychiatric medication (94.4 %, $n = 136$). More than half of the participants were single (66 %, $n = 95$), identified as Christians (76.4 %, $n = 110$), received a bursary (78.5 %, $n = 113$), had families living in rural areas (71.5 %, $n = 103$) and resided in the university housing (73.6 %, $n = 106$). Gender ($p = 0.01$), age ($p = 0.02$), religious affiliation ($p = 0.03$), history of psychiatric illness ($p = 0.05$) and treatment for psychiatric illness ($p = 0.05$) had a significant influence on the Total PMH score. Male participants reported higher mean scores in most PMH domains, excluding emotional support and spirituality domains. Participants aged between 22 and 23 years reported lower mean scores in Total PMH and most PMH domains. There is a significant difference in mean scores with gender ($p = 0.02$) and religious affiliation ($p = 0.00$) in the spirituality domain.
Conclusion: The study results emphasised the complex nature of mental health and provided a rationale for assessing the various aspects of PMH in university students. By implementing evidence-based strategies and providing adequate support, medical schools can better support the mental health and well-being of their students, ultimately cultivating a healthier and more resilient future healthcare workforce.

1. Introduction

Medical school is typically a tough, stressful, intimidating, and challenging academic experience [1,2]. The demanding, intense environment of medical education has placed undue strain on medical students' psychological well-being, which can have negative consequences on a personal or professional level [3,4]. Evidence indicates that the psychological well-being of medical students declines shortly after

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they commence their medical education and persists at a low level throughout their training [5,6]. These findings suggest that certain components of medical education have a negative impact on students' psychological well-being, undermining medical education institutions' goal of producing medical practitioners with the appropriate personal traits and professional competency [3,7].

Mental health is defined by World Health Organization as a "'state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" [8]. The concept of 'mental health' is subjective and can vary between cultures and be impacted by personal beliefs. However, it is generally seen as the presence of pleasant emotions and effective functioning in life, rather than only the absence of negative emotions, symptoms, or impairment [9,10]. Positive psychology is an aspect of psychology that aims to comprehend positive emotions, psychological capacity, and the effective functioning of individuals, societies, and institutions. It also strives to utilise this understanding to assist individuals and institutions [11,12]. In the field of positive psychology, well-being is classified into two contrasting but overlapping categories: 'eudaimonic', which is psychological well-being, and 'hedonic', which is subjective well-being. The hedonic well-being is linked to the pursuit of pleasant and comfortable states, while eudaimonic well-being relates to leading a good life and being fully functional [13]. Positive mental health is defined as "the scientific study of those positive strengths and virtues that enable people and communities to reach optimal levels of health, happiness, and well-being" [14]. This perspective acknowledges that positive mental health and well-being are comprehensive notions that extend beyond healthy behaviours to encompass entire well-being. It replaces the conventional medical approach, which primarily emphasises the treatment of mental illness [15].

Positive mental health among medical students is crucial for their overall well-being and professional development. A study conducted with medical students in the United States of America has identified an association between PMH and improved professional behaviours and beliefs [16]. This underscores the significance of fostering PMH to help medical students maintain professionalism and effectively manage the challenges they encounter during their training. Furthermore, prioritising PMH among medical students is essential, as mental health issues can persist post-medical school and impact patient care negatively [17]. Therefore, investing in the mental health of medical students is not only beneficial for their personal growth but also essential for the sustainability and efficacy of healthcare systems.

Extensive research has thoroughly established the prevalence of mental illnesses among medical students. Studies consistently showed that medical students exhibit elevated levels of stress, anxiety, depression, and other mental health disorders in comparison to the general population and other student cohorts [18,19]. Factors contributing to these mental health challenges include the demanding nature of medical education programs, academic pressure, and the clinical environment [20–22]. Research has also highlighted the impact of stressors such as examination stress, workload, and lack of social interaction on the mental well-being of medical students [23–25]. The COVID-19 pandemic has further exacerbated mental health issues among medical students, with studies reporting increased levels of anxiety, depression, and stress during lockdowns and remote learning periods [23,26]. The pandemic has introduced additional stressors such as fears of infection, uncertainty, and social isolation, leading to emotional disturbances among medical students [23,26].

Several studies have examined the mental well-being of students in South Africa and have provided detailed information about the mental health issues experienced by university students in the country [27–30]. These studies have looked at the frequency of mental disorders, the effects of stressful life events, and the implications of the COVID-19 pandemic on mental health. However, none of the studies evaluated the PMH domains among medical students in South Africa. Hence, this study aimed to assess the levels of Total PMH and various domains of PMH, as well as their association with socio-demographic and health-related variables, among medical students at a university in South Africa.

2. Methods

2.1. Study design and population

A descriptive, quantitative, and cross-sectional survey was conducted among School of Medicine (SoM) students at a university in South Africa. The study sample included 144 medical students registered in 2023 from first to final levels. Convenient sampling method was employed to recruit students who consented to partake in the research.

2.2. Data collection tools

All the data collection instruments were self-administered.

2.3. Socio-demographic and health related questionnaire

This questionnaire included socio-demographic variables such as gender, age, religion, relationship status, household income per month in South African Rands (ZAR), family residence. The health-related variables included participants' history of psychiatric illness and treatment for psychiatric illness.

2.4. Positive mental health instrument

The researchers utilised a multi-dimensional PMH instrument designed by Vaingankar et al., 2011 [41]. This instrument is a self-administered tool that encompasses all essential and culturally relevant aspects of mental health and can be used to compare levels of mental health across various population groups. This instrument was developed through a combination of qualitative research conducted on people with mental health disorders followed by quantitative research and psychometric analysis. Copyright to use PMH instrument was obtained from the National Institute of Mental Health, Singapore.

This instrument comprises 57 questions encompassing six domains:

1. **General Coping** refers to individuals' responses and coping strategies during stressful situations and their ability to think positively and participate in selected activities.
2. **Emotional Support** is key for helping people cope with difficult situations in life and promising feeling loved and wanted. A willingness to share the burden with others and is important to obtain compassionate advice and care.
3. **Spirituality** encompasses both spiritual and religious practices and beliefs that influence individual's faith and behaviour in life. This contributes to PMH as a coping mechanism and means of establishing strong social support and network.
4. **Interpersonal Skills** are associated with all aspects of mental health and are essential in helping the individual develop and maintain good relationships, which in turn provide the support and networks needed during times of distress.
5. **Personal Growth and Autonomy** is knowing one's goals and ways to achieve them, is a sign of good mental health. It reflects the level of confidence, freedom, sense of purpose, and the ability to self-evaluate and make decisions.
6. **Global Affect** is the experience of a positive mood, is a sign of mental health. Calm, happy, and enthusiasm means emotional stability being full of energy.

Participants were instructed to rate the extent to which each item described them on a scale of 1 to 6, with 1 indicating "Not at all like me" and 6 indicating "Exactly like me," for the first five domains. In the

'Global affect' domain, participants were asked to rate their frequency of experiencing feelings of calmness, peacefulness, relaxation, and enthusiasm over the past four weeks using a 5-point response scale ranging from 1 ('Never or very rarely') to 5 ('Very often or always'). The domain-specific scores were calculated by summing the scores of the respective items and thereafter dividing by the number of items in each domain.

2.5. Data collection

Prior to recruitment, the researchers provided a study information leaflet to the prospective participants, which provided detailed information about the aims, objectives, and the significance of the study. Data were collected over a period of three weeks, from September 2023 to October 2023. Convenient sampling method was employed to enrol the participants who met the inclusion criteria. The following inclusion criteria were applied: registered undergraduate medical students of FHS from first to final level, who are older than 18 years and who agreed to provide written consent. Medical postgraduate students and students who did not provide written consent to participate in the study were excluded.

2.6. Validity and reliability

Internationally available PMH tools focused on specific mental health areas with a higher level of detail, using either comprehensive surveys or concise questionnaires that do not allow for meaningful comparisons and the detection of changes across the domains. Nonetheless, the PMH instrument utilised in this study thoroughly assessed the various aspects of mental health. The PMH instrument is a cross-cultural questionnaire developed by Vaingankar et al. (2011) and later validated through research conducted in Singapore and South Africa [42,43].

To ensure the validity and reliability of the data in this study, the researchers selected a sample that is representative of the target population. The researchers adopted this approach to bolster external validity and generalisability of the findings. The researchers utilised meticulous data collection methods in this investigation. The research team was thoroughly trained on data collection tools, to ensure consistency with data collection protocols and minimise bias. The researchers employed data validation procedures to ensure the thoroughness and comprehensiveness of the data. The researchers implemented the defined inclusion and exclusion criteria for this study with great rigour.

2.7. Data analysis

IBM Statistical Package for Social Studies (SPSS) version 29 was used to analyse the data. The PMH domain scores were calculated using the recorded item scores for the questions specific to each domain, pooled together, and divided by the number of questions. The Mann-Whitney *U* test (Independent *t*-tests) and Kruskal-Wallis H test (Analysis of Variance) were used to identify the significant differences in mean scores of total PMH and PMH domains across various socio-demographic and health related variables. A multiple linear regression analysis was conducted to determine the relationship between socio-demographic and health related variables and PMH domains. The study's statistical significance was established at $p \leq 0.05$ using two-sided tests.

2.8. Ethical considerations

The researchers obtained ethical clearance to conduct the study from the institutional research ethics committee. Gatekeeper permission to collect data from the participants was obtained from the registrar of the university. The aims and objectives of this study were clearly described in a study information leaflet. The participants were informed that their participation in this study is voluntary, allowing them to withdraw without providing any reasons. Anonymity and confidentiality were strictly maintained throughout the study and no personal information was obtained from the participants that could link their identity. Prior to data collection, written consent was obtained from all participants. The study rigorously complied with all ethical norms and research protocols in accordance with the Declaration of Helsinki.

3. Results

The study population consisted of 144 medical students from first year to final year, with an equal distribution of both genders (50 %, $n = 72$). Table 1 displays the socio-demographic and health related characteristics of the participants. The majority of the students were older than 20 years (79.2 %, $n = 114$), did not have any history of psychiatric illness, and had not taken any psychiatric medication previously (94.4 %, $n = 136$). More than half of the participants were single (66 %, $n = 95$), Christian (76.4 %, $n = 110$), received a bursary (78.5 %, $n = 113$), their family resided in rural areas (71.5 %, $n = 103$) and stayed in the university residence (73.6 %, $n = 106$).

3.1. Total PMH and domain-specific scores by socio-demographic and health related variables

Mann-Whitney U test and Kruskal-Wallis H test were used to identify the significant differences in mean scores of total PMH and PMH domains across various socio-demographic and health related variables. Gender ($p = 0.01$), age ($p = 0.02$), religious affiliation ($p = 0.03$), history of psychiatric illness ($p = 0.05$) and treatment for psychiatric illness ($p = 0.05$) had a significant influence on total PMH score. Male participants reported higher mean scores in most PMH domains excluding emotional support and spirituality domains. Participants aged between 22 and 23 years reported lower mean scores in the Total PMH and most PMH

Table 1
Socio-demographic and health related characteristics of the student sample ($n = 144$).

Socio-demographic and health related characteristics		Number of students (n = 144)	Percentage (%)	*p*-value[#]
Gender	Male	72	50.0	1.00
	Female	72	50.0	
Age (in years)	18–19	30	20.8	0.24
	20–21	44	30.6	
	22–23	40	27.8	
	>23	30	20.8	
Relationship status	Single	95	66.0	0.00*
	In a relationship/ Married	49	34.0	
Household income (in South African Rands per month)	R 0- R 5000	36	25.0	0.94
	R 5001-R 10000	33	22.9	
	R 10001-R 20000	37	25.7	
	>R 20000	38	26.4	
Religious affiliation	Christian	110	76.4	0.00*
	None	34	23.6	
Bursary	Yes	113	78.5	0.00*
	No	31	21.5	
Family residence	Rural	103	71.5	0.00*
	Urban	41	28.5	
Current living status	In university residence	106	73.6	0.00*
	Private residence	38	26.4	
History of psychiatric illness	Yes	8	5.6	0.00*
	No	136	94.4	
Have you taken any psychiatric medicines before?	Yes	8	5.6	0.00*
	No	136	94.4	

[#] Pearson Chi-square Test.
* $p \leq 0.05$.

domains, except in general coping and emotional support domains. In the general coping domain, significant difference in mean scores were observed with gender ($p = 0.01$), religious affiliation ($p = 0.04$) and treatment for psychiatric illness ($p = 0.02$).

With respect to the emotional support domain, significant differences in mean scores were observed with the participant's current residence ($p = 0.01$) and their relationship status ($p = 0.05$). There is a significant difference in mean scores with gender ($p = 0.02$) and religious affiliation ($p = 0.00$) in the spirituality domain. Gender also had a significant influence on the interpersonal skills ($p = 0.01$), growth of autonomy (p = 0.00) and global affect (p = 0.01) domains, where significant differences in mean scores were observed. The age of the participants influenced the significant differences in mean scores of personal growth and autonomy and global affect domains. The mean total PMH and domain-specific scores by socio-demographic and health related variables are shown in Table 2.

3.2. Association between socio-demographic and health related variables and PMH domains

A multiple linear regression analysis was performed to identify the association between socio-demographic and health related variables and PMH domains. Table 3 shows the correlation between socio-demographic and health related variables and various PMH domains. Gender had a significant association with Total PMH (β = −0.22; p = 0.04), general coping (β = −0.51; p = 0.00), personal growth and autonomy (β = -0.33; p = 0.02) and global affect (β = -0.46; p = 0.02) domains. Significant associations were also observed between religious affiliation and Total PMH (β = -0.29; $p = 0.02$), general coping (β = -0.41; p = 0.03), and spirituality domains (β = -0.92; $p = 0.00$).

Table 2
Total PMH and domain scores by socio-demographic and health related variables.

Socio-demographic and health related variables		Total PMH		General coping		Emotional support		Spirituality		Interpersonal skills		Personal growth and autonomy		Global Affect	
		Mean (SD)	*p*-value	Mean (SD)	*p*-value	Mean (SD)	*p*-value	Mean (SD)	*p*-value	Mean (SD)	*p*-value	Mean (SD)	*p*-value	Mean (SD)	*p*-value
Gender	Male	4.56 (0.63)	0.01*	4.31 (0.85)	0.00*	4.51 (1.26)	0.55	4.78 (1.03)	0.02*	4.37 (0.87)	0.01*	4.86 (0.86)	0.00*	4.58 (0.97)	0.01*
	Female	4.34 (0.59)		3.79 (0.94)		4.53 (1.04)		5.09 (1.01)		4.15 (0.65)		4.51 (0.81)		4.08 (1.18)	
Age (in years)	18–19	4.36 (0.67)		3.81 (1.01)		4.41 (1.37)		4.86 (0.99)		4.30 (0.78)		4.65 (0.98)		4.13 (1.28)	
	20–21	4.50 (0.68)		4.07 (1.00)		4.46 (1.25)		5.05 (1.10)		4.27 (0.77)		4.74 (0.93)		4.49 (0.99)	0.02**
	22–23	4.31 (0.46)	0.02**	3.97 (0.83)	0.18	4.44 (1.02)	0.34	4.85 (1.05)	0.50	4.19 (0.75)	0.59	4.45 (0.69)	0.02**	4.01 (1.11)	
	>23	4.66 (0.63)		4.39 (0.82)		4.81 (1.09)		4.93 (0.99)		4.31 (0.73)		4.97 (0.75)		4.73 (0.95)	
Relationship status	Single	4.43 (0.65)	080	4.02 (1.03)	1.00	4.35 (1.28)	0.05*	4.94 (1.02)	0.91	4.25 (0.83)	0.95	4.70 (0.88)	0.57	4.38 (1.12)	0.29
	In a relationship /married	4.49 (0.55)		4.11 (0.71)		4.85 (0.90)		4.92 (1.08)		4.29 (0.59)		4.66 (0.80)		4.24 (1.09)	
Household Income (in ZAR)	R 0-R 5000	4.34 (0.64)	0.09***	3.79 (1.03)	0.35	4.24 (1.30)	0.13	4.85 (1.09)	0.42	4.29 (0.77)	0.07***	4.64 (0.93)	0.86	4.26 (1.24)	0.99
	R 5001-R10000	4.56 (0.59)		4.26 (0.68)		4.79 (1.02)		5.01 (1.00)		4.29 (0.58)		4.74 (0.86)		4.37 (1.14)	
	R 10001-R 20000	4.58 (0.59)		4.10 (0.98)		4.75 (1.14)		5.12 (0.89)		4.49 (0.73)		4.78 (0.75)		4.32 (1.11)	
	>R 20000	4.33 (0.63)		4.09 (0.95)		4.32 (1.19)		4.75 (1.14)		3.98 (0.82)		4.60 (0.89)		4.37 (0.98)	
Religious affiliation	Christianity	4.52 (0.58)	0.03*	4.14 (0.93)	0.04*	4.60 (1.18)	0.08***	5.15 (0.80)	0.00*	4.30 (0.68)	0.43	4.72 (0.79)	0.86	4.29 (1.15)	0.47
	None	4.22 (0.70)		3.78 (0.89)		4.25 (1.18)		4.24 (1.37)		4.14 (0.94)		4.59 (1.05)		4.47 (1.10)	
Bursary	Yes	4.45 (0.64)	0.98	4.06 (0.92)	0.91	4.50 (1.04)	0.91	4.92 (1.03)	0.74	4.29 (0.75)	0.57	4.67 (0.88)	0.77	4.34 (1.10)	0.97
	No	4.56 (0.54)		4.02 (0.98)		4.57 (1.07)		4.94 (1.08)		4.16 (0.77)		4.77 (0.78)		4.32 (1.17)	
Family residence	Rural	4.45 (0.63)	0.92	4.01 (0.94)	0.28	4.51 (1.19)	0.83	4.96 (1.00)	0.78	4.33 (0.73)	0.15	4.68 (0.87)	0.96	4.33 (1.10)	0.89
	Urban	4.45 (0.61)		4.16 (0.92)		4.54 (1.19)		4.86 (1.12)		4.09 (0.78)		4.70 (0.83)		4.34 (1.15)	
Current living status	In university residence	4.47 (0.65)	0.42	4.05 (0.94)	0.94	4.65 (1.17)	0.01*	4.87 (1.09)	0.25	4.22 (0.78)	0.42	4.72 (0.92)	0.16	4.38 (1.13)	0.42
	Private residence	4.41 (0.52)		4.05 (0.93)		4.14 (1.15)		5.11 (0.85)		4.38 (0.66)		4.59 (0.63)		4.21 (1.04)	
History of psychiatric illness	Yes	3.96 (0.77)	0.05*	3.61 (0.84)	0.13	3.84 (1.49)	0.13	4.60 (1.26)	0.42	4.00 (1.27)	0.20	4.00 (1.27)	0.08***	3.91 (1.17)	0.26
	No	4.48 (0.60)		4.08 (0.93)		4.56 (1.16)		4.95 (1.02)		4.72 (0.81)		4.73 (0.81)		4.36 (1.10)	
Have you taken psychiatric medicine before?	Yes	3.98 (0.78)	0.05*	3.38 (0.75)	0.02*	3.91 (1.52)	0.19	4.55 (1.22)	0.28	3.94 (0.64)	0.12	4.19 (1.29)	0.28	4.10 (0.86)	0.33
	No	4.48 (0.60)		4.09 (0.93)		4.55 (1.16)		4.95 (1.02)		4.28 (0.76)		4.72 (0.82)		4.35 (1.12)	

*$p \leq 0.05$, using Mann-Whitney U Test; **$p \leq 0.05$, using Kruskal-Wallis H Test; ***$p \leq 0.10$; SD: Standard Deviation.

Table 3
Correlations between socio-demographic and health related variables and PMH domains.

Socio-demographic and health related variables		Total PMH	General Coping	Emotional Support	Spirituality	Interpersonal Skills	Personal Growth and Autonomy	Global Affect
Gender	β	−0.22	-0.51	0.01	0.28	-0.22	−0.33	−0.46
	p-value	0.04*	0.00*	0.97	0.09**	0.09**	0.02*	0.02*
Age (in years)	β	0.08	0.12	0.02	−0.00	−0.05	−0.02	0.04
	p-value	0.90	0.12	0.85	0.99	0.43	0.75	0.66
Relationship status	β	0.16	0.09	0.68	0.19	0.14	0.07	−0.17
	p-value	0.16	0.59	0.00*	0.31	0.32	0.69	0.42
Household income (in ZAR per month)	β	0.01	0.52	0.04	−0.03	−0.05	0.02	0.07
	p-value	0.85	0.47	0.67	0.68	0.38	0.77	0.47
Religious affiliation	β	−0.29	−0.41	−0.37	−0.92	0.14	−0.09	0.25
	p-value	0.02*	0.03*	0.12	0.00*	0.34	0.60	0.28
Bursary	β	0.02	−0.13	0.27	0.13	−0.07	0.08	−0.13
	p-value	0.87	0.51	0.29	0.56	0.68	0.68	0.59
Family residence	β	−0.02	0.12	−0.05	−0.18	−0.22	0.03	0.09
	p-value	0.89	0.50	0.83	0.35	0.15	0.86	0.67
Current living status	β	−0.02	−0.01	−0.45	0.31	0.26	−0.11	−0.15
	p-value	0.90	0.94	0.05*	0.11	0.08**	0.52	0.49
History of psychiatric illness	β	0.29	−0.65	0.95	−0.05	−0.28	1.01	0.78
	p-value	0.53	0.34	0.27	0.95	0.62	0.12	0.36
Have you taken any psychiatric medicines before?	β	0.20	1.08	−0.09	0.43	0.60	−0.42	−0.52
	p-value	0.66	0.11	0.92	0.56	0.28	0.52	0.54

β = Unstandardized value; *p-value ≤ 0.05; **p-value ≤ 0.10.

4. Discussion

It is critical to emphasise that the mental health and well-being of medical students, irrespective of gender, are of utmost importance. In our study, male students reported significantly higher Total PMH compared to females. Literature suggests that male medical students may exhibit higher levels of resiliency [31], better concentration under stress [32], and lower levels of depression and neuroticism compared to female students [33]. On the other hand, female medical students have been reported to experience higher levels of stress, anxiety, and depression [34,35]. Although, there are variations in the mental health experiences of male and female medical students, both groups face challenges that impact their well-being. A study conducted in the United Arab Emirates highlighted the high levels of stress experienced by medical students and its influence on mental health and academic performance, irrespective of gender [36]. To enhance the mental health outcomes of all medical students, it is essential to address these challenges by implementing focused interventions and support networks.

The prevalence of mental health issues among medical students is a topic of concern, with studies indicating varying levels of mental health problems within medical student populations across different age groups. Our study findings highlight a nuanced relationship between age and mental well-being among medical students, where students aged between 22 and 23 years reported lower Total PMH compared to other age groups. Slavin et al. (2014) and Merlo et al. (2017) highlighted that while incoming medical students generally report similar or better mental health and well-being compared to their age-matched peers at the start of medical school, there is a subsequent increase in psychiatric distress and suicidal ideation [37,38]. This shift in mental health outcomes among medical students relative to their age group underscores the significance of age-related factors in understanding mental well-being in this population. Further research is essential to explore the specific determinants influencing the mental well-being of medical students across different age groups. Understanding these intricacies can guide tailored interventions and support mechanisms to enhance positive mental health outcomes for all medical students, irrespective of age. It is crucial for medical schools to focus on enhancing mental health literacy from the early stages of medical training to ensure students can recognise and seek help for mental health issues [39].

Medical students with religious affiliation, and spirituality can benefit from enhanced mental well-being and positive mental health outcomes. Religious affiliation (Christianity) had a significant influence on the Total PMH and on all the domains of PMH except the global affect. The relationship between students' mental well-being and their religious beliefs has been extensively studied. Hasanshahi et al. (2018) highlighted the significant impact of spirituality on mental health, emphasising how religious beliefs and faith in a higher power can enhance tolerance to failures, promote physical and mental health, and increase hope for the future [40]. Spirituality may act as a protective factor against burnout in medical students, suggesting a potential causal relationship that warrants further investigation [41,42]. Gaston-Hawkins et al. (2020) established a correlation between higher levels of spiritual well-being and daily spiritual experiences among medical students, suggesting a lower chance of experiencing burnout, as well as an increased likelihood of life satisfaction.

Students with a history of psychiatric illness face unique challenges in academic settings. Research indicates that mental health issues, such as depression and anxiety disorders, can significantly impact academic performance, leading to lower academic performance and higher dropout rates [43]. In our study, medical students with a history of psychiatric illness and who received treatment for such illness reported lower PMH in all domains, including Total PMH. The pressures of academic performance in fields such as medicine may contribute to poor psychological well-being, burnout, and mental health issues among students [44]. Additionally, insufficient coping skills under chronic stress can lead to a higher likelihood of dropping out, especially for students with psychiatric diagnoses [45]. The mental well-being of students receiving treatment for psychiatric illness is a critical area that

requires attention and support [46]. More than 50 % of medical students who fulfil the diagnostic criteria for a mental disease are hesitant to seek professional assistance due to their apprehension of being stigmatised [47,48]. Addressing the mental well-being of students receiving treatment for psychiatric illness requires a multifaceted approach that includes promoting resilience, reducing stigma, providing adequate support services, and ensuring positive attitudes towards mental health care [49].

4.1. Limitations

This study is a cross-sectional survey carried out with a relatively smaller cohort of medical students at a university in South Africa. Therefore, our findings cannot be extrapolated to the entire student demographic in South Africa. Thus, this study may not have definitively determined the cause-and-effect relationships between variables and may have solely presented data on correlations or associations.

The authors recognise the potential for response bias in this study, as certain students may possess biases or motivations that impact their answers, potentially resulting in inaccurate or distorted data. Due to the specific institution and geographical area in South Africa with a predominantly black population, this study only included students of that race and excluded students from other races. Therefore, the researchers are unable to provide a valid explanation for the impact of race on Total PMH and other aspects of PMH. The reported lower levels of PMH among students with a history of psychiatric illness and who received treatment cannot be substantiated due to the limited sample size.

Despite the presence of these limitations, the researchers have confidence in the strength and persuasiveness of the study's findings. They also believe that these findings can serve as a foundation for future research to delve deeper into the levels of PMH among university students. Conducting a larger study with a more diverse students could achieve.

5. Conclusion

The study findings clearly demonstrate a need for interventional programmes addressing specific risk factors among medical students in South African Universities. Universities should make student mental health and well-being a priority issue, as it directly influences the learning process and adjustment to the academic environment. By creating a culture of well-being and providing resources and support services, universities can contribute to positive mental health outcomes for their students. To proactively address mental health challenges among students, medical schools should prioritise integrating mental health literacy education into their curriculum. By implementing these evidence-based strategies and drawing on insights from reputable literature, medical schools can cultivate a supportive environment that fosters positive mental health and well-being among their students. This approach ultimately contributes to the success and resilience of future healthcare professionals.

CRediT authorship contribution statement

Rajesh Vagiri: Writing – review & editing, Writing – original draft, Validation, Software, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Mabitsela Mphasha:** Writing – review & editing, Investigation. **Varsha Bangalee:** Writing – review & editing. **Wandisile Grootboom:** Writing – review & editing, Formal analysis. **Letlhogonolo Makhele:** Writing – review & editing. **Neelaveni Padayachee:** Writing – review & editing, Writing – original draft.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.dialog.2024.100188.

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