



Personality and coping styles in medical internees: a cross-sectional study

Abstract

Background and aims: Medical education is an elaborate course requiring knowledge assimilation, skill development, and academic perfection. Emerging out of the course successfully is a strenuous process which tests students' psychological domains like personality, coping skills, and so on. The present study was planned with this primary objective of assessing the personality traits, psychoactive-substance use, and coping skills in the medical students and the secondary objective of finding the impact of personality and psychoactive-substance use on coping styles. **Methods:** The study was conducted on internees, recruited on individual approach over a period of one year. Ethical clearance was taken. Consenting candidates were administered sociodemographic proforma, the Eysenck Personality Inventory, and the coping checklist. Pearson's correlation and independent t-test were used for analysis. **Results:** A total of 167 internees took part in study. On personality assessment, mean score of extraversion was 12.56 (± 3.78) suggesting ambiversion and neuroticism was 9.36 (± 4.89) suggesting mixed neurotic traits. Thirty four (20%) used psychoactive-substance. Problem-solving, distraction-positive, and acceptance-redefinition were frequently used coping styles. Extraversion correlated positively with distraction-negative ($p < 0.01$) and negatively with acceptance-redefinition ($p = 0.03$). Neuroticism had significant positive correlation with problem-solving ($p = 0.03$), distraction-positive ($p < 0.01$), distraction-negative ($p < 0.01$), faith-religion coping ($p < 0.001$), and blame-denial coping ($p < 0.001$). On gender-wise assessment, males used more of distraction-negative ($p = 0.02$) and females used more of faith-religion coping styles ($p = 0.02$). Psychoactive-substance users elaborated more of distraction-negative and less of acceptance-redefinition coping. **Conclusion:** Internees had ambiversion and mixed neurotic personality traits. Their personality and substance use had significant influence on the types of coping styles used. There is need of training to effectively manage stress using appropriate coping strategies based on their personality.

Keywords: Medical Education. Medical Students. Psychoactive Substance Use. Psychological Adaptation.

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INTRODUCTION

Medical education is an elaborate process encompassing transformation of an inexperienced adolescent into a competent medical practitioner. This involves higher order learning, acquisition of skills and mastering vast curriculum while emphasising on academic perfection. Thus, it makes medical education emotionally demanding and strenuous process. This causes tremendous pressure on young minds to perform better irrespective of their individual capabilities.[1] To emerge as a competent doctor, one needs multiple psychological domains such as intelligence, emotional quotient, personality, and so on. It is said that, intelligence contributes by only one-third to the doctor's observed success and the rest two-thirds is attributed to various other psychological realms.[2] These psychological realms, other than intelligence, are usually neglected in selection process and deemed less important during eventual medical training. These not only determine the success of

student but also their wellbeing.[3] Psychological wellbeing of the student is the need of the hour, especially in the backdrop of recent rise in number of suicide deaths among medical students.[4] Assessing their personality and the ability to deal with stressful situations are initial steps in this regard and pave way for further intervention. Personality and cognitive styles play a crucial role in perceiving situations, classifying them as stressful, and elaborating mechanisms to effectively deal with the stress.[5] Role of coping strategies is vital in effective management of stress. Coping strategies not only help to resolve the stress but also minimise or distract from its negative influence.[6] Considering the various challenges faced by these students, in their academic phase, their ability to cope effectively is extremely important. The understanding of which is crucial; thereby, helping to promote these constructs and their overall wellbeing. In this background, the present study is planned:

- a) To assess personality traits, use of psychoactive substance, and coping styles in medical undergraduate students, and
- b) To assess for the influence of personality traits and psychoactive substance use on the choice of coping styles.

METHOD

This is a cross-sectional descriptive study in a sample of medical interneers undergoing training in hospitals, namely Chigateri General Hospital and Bapuji Hospital both attached to a medical college, in South India.

Sample

Sample consisted of medical interneers of both genders who were undergoing internship. The sample was recruited over one year period from December 2011 to November 2012. Those having medical and psychiatric illness were excluded from the study to prevent the reporting bias. Distress due to on-going illness can influence the mood and thus, their responses on questionnaires. Institutional ethical review board had approved the study on 19/10/2011.

Methodology

Subjects were included in the study based on opt-in method, i.e. all those who agreed were given the test. A brief introductory script was given to all candidates explaining about the study. It was clarified that participation is voluntary and confidentiality would be maintained. After obtaining written consent, sociodemographic details were elicited using a self-designed proforma. Personality traits were assessed using the Eysenck Personality Inventory (EPI).[7] It has 57 items which are grouped into three dimensions, extraversion, neuroticism, and lie score. Extraversion and neuroticism domains have 24 questions each and lie score has nine questions. The responses to questions have to be in the form of yes or no. The coping checklist (CCL) which was developed by Rao *et al.*[8] at the National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru, Karnataka, India, having 70 items was used to assess coping skills. The scale was developed and validated in a healthy sample drawn from the community. It has seven subscales. They are one problem focused subscale (problem-solving), five emotion-focused subscales (distraction-positive, distraction-negative, acceptance-redefinition, faith-religion, and denial-blame), and one social-support subscale which is said to be combination of both problem- and emotion-based coping strategies.

Interneers were motivated to answer honestly, when they were in a peaceful mind-set to avoid mood state at that time from influencing the scores. They were given adequate time and privacy for answering the questionnaires. The presence of lie score in one of the questionnaires was intentionally not revealed to observe the tendency in answering and to avoid socially desirable responses. However, those who scored above the cut-off lie scores were not included in the analysis; but, their scores were analysed in comparison. Any doubts pertaining to the nature of the questions or response methods were clarified. There was no time limit for the test; but, they

were instructed to provide immediate responses rather than analysing the question in depth. Individual feedback was given to all candidates who participated about their scores and tips for self-development.

Statistical analysis

Each interneer was assigned a numeric code to maintain confidentiality; data was coded and tabulated. The Kolmogorov-Smirnov test was used to check the data for normality. Pearson's correlation and independent t-test were used for analysis using Statistical Package for the Social Sciences (SPSS) 17 version of software. Statistical significance was set at 0.05 level.

RESULTS

Sample consisted of total 167 participants with nearly equal gender distribution and mean age was 23 years. Table 1 shows sociodemographic details of the sample. Thirty four (20%) participants reported use of one or more psychoactive substance; of which only alcohol was used by 21 (12.6%), only nicotine by three (1.8%), both alcohol and nicotine by nine (five per cent), and only one person reported marijuana use. On EPI, mean score of the sample on extroversion domain was 12.56 ± 3.78 , neuroticism was 9.36 ± 4.89 . Lie score of five or above was deemed not reliable. Of the total, 36 interneers scored five or above who were excluded from further analysis and remaining 131 were analysed. Coping styles used commonly were problem-solving, distraction-positive, and acceptance-redefinition. Distraction-negative and faith-religion were used relatively in less frequency. Other coping styles, social-support and blame-denial were used in moderate frequency.

Gender-wise comparison done using independent t-test is shown in Table 2. Males were involved more in distraction-negative ($t=2.33$, $p=0.02$, confidence interval [CI] 95%) and females were involved more in faith-religion copings ($t=2.34$, $p=0.02$, CI 95%), both the findings were statistically

Table 1: Sociodemographic data (N=167)

Age (years)	Mean \pm SD	23 \pm 0.95	
Sex	Females	86	51%
	Males	81	49%
Locality	Urban	145	87%
	Rural	22	13%
Religion	Hindu	156	93%
	Others	11	7%
Marital status	Single	157	94%
	Committed	5	3%
	Married	5	3%
Type of family	Nuclear	135	81%
	Extended	8	5%
	Joint	24	14%
Psychoactive substance use	No	133	80%
	Yes	34	20%

SD: Standard Deviation

Table 2: Independent t-test comparing gender differences (n=131)*

Personality and coping styles	Male (n=62) mean	SD	Female (n=69) mean	SD	t	p
Extraversion	12.48	3.65	12.63	3.91	-0.24	0.80
Neuroticism	8.70	5.01	9.99	4.71	-1.70	0.09
Problem-solving	7.38	1.35	7.03	1.71	1.45	0.14
Distraction-positive	7.19	2.69	7.84	2.83	-1.52	0.13
Distraction-negative	2.07	1.78	1.49	1.44	2.33	0.02
Acceptance-redefinition	7.81	1.80	7.73	1.73	0.30	0.76
Faith-religion	2.20	1.86	2.87	1.85	-2.34	0.02
Blame-denial	3.74	2.09	4.08	2.24	-1.01	0.31
Social-support	3.94	1.25	4.08	1.00	-0.81	0.41

*Proforma scoring five and above on lie score were excluded

SD: Standard Deviation

significant. No statistically significant difference was found on personality traits.

Personality traits were correlated with the coping styles of the interneers using Pearson's correlation test. Extraversion had significant positive correlation with distraction-negative ($r=0.32$, $p<0.01$) and negative correlation with acceptance-redefinition coping ($r=0.18$, $p=0.03$). Neuroticism had significant positive correlation with problem-solving ($r=0.18$, $p=0.03$), distraction-positive ($r=0.24$, $p<0.01$), distraction-negative ($r=0.24$, $p<0.01$), faith-religion coping ($r=0.35$, $p<0.001$), and blame-denial coping ($r=0.53$, $p<0.001$), shown in Table 3.

Psychoactive substance users were compared with non-users using independent t-test; results shown in Table 4. Group using substance had high distraction-negative coping ($t=3.83$, $p<0.001$, CI 95%) and low acceptance-redefinition ($t=2.63$, $p=0.01$, CI 95%) than non-users.

Those who scored five or higher on lie score were compared with low score group; the only difference that was significant was neuroticism ($t=3.46$, $p<0.001$, CI 95%). High score on lie scale had significantly lower neuroticism score (Table 5).

DISCUSSION

It was found that personality traits have significant influence on perception of stress, the extent one copes with stress, and the type of coping we engage-in.[9] Some personality traits may aid to de-stress,[5] while some traits may exacerbate the existing stress leading to stress-induced disorders such as anxiety, depression, and substance abuse.[10,11] According to a psychodynamic theory, defence mechanisms are considered as personality traits which influence how individuals perceive events. These mechanisms also consistently dictate coping responses through adaptive or maladaptive ways.[12] Another theory holds that coping strategies used during stress are themselves the unconscious defence mechanisms.[13] In contrast, Lazarus and Folkman[9] defined coping as a "conscious, intentional, goal-directed response that is tailored response to the specific demands of a stressor"; thus, delinking it from defence mechanisms.

The present study assessed the personality and coping styles in the undertraining medical students who were

Table 3: Correlation of personality and coping styles (n=131)*

Coping styles	Extroversion		Neuroticism	
	r	p	r	p
Problem-solving	-0.01	0.89	0.18	0.03
Distraction-positive	-0.05	0.51	0.24	0.00
Distraction-negative	0.32	<0.01	0.24	<0.01
Acceptance-redefinition	-0.18	0.03	0.10	0.21
Faith-religion	-0.10	0.23	0.35	<0.001
Blame-denial	-0.01	0.94	0.53	<0.001
Social-support	0.07	0.38	0.07	0.39

*Proforma scoring five and above on lie score were excluded

involved in fulltime patient care for the first time in their career. It involves eliciting history, diagnosing and treating patients using their clinical knowledge, communication skills, and decision-making capability. It tests their clinical acumen through competency and efficiency when they face prolonged duty hours and risky work environment. Along with these, other events in their personal life, preparation for their upcoming postgraduate entrance examination altogether makes this phase of life more stressful. In such a phase, coping styles are of great necessity in reducing their stress and improving resilience. Coping also prevents negative impact of stress on health.[6]

In this study, interneers had mean score of 12.56 on extraversion and 9.36 on neuroticism domains, on EPI. According to the scale, on the extraversion domain score, 17 and above are considered as extrovert, score seven and below as introvert. The scores between eight and 16 had not been assigned to any named category in the norms of the scale; hence, authors decided to consider them as ambiverts. Similarly, on neuroticism domain, score 14 and above are regarded as neurotic while score four and below are regarded as emotionally balanced. The scores ranging from five to 13 were unnamed in the scale; hence, this group was considered as having mixed neurotic traits. In this study, the majority of the sample were ambiverts and of mixed neurotic traits category. Problem-solving, distraction-positive, and acceptance-redefinition were the commonly used coping styles in the study sample. Blame-denial and social-support

Table 4: Independent t-test in substance users and non-users (n=131)*

Personality and coping styles	Non-user (n=103)		User (n=28)		t	p
	Mean	SD	Mean	SD		
Extraversion	12.43	3.84	13.64	3.91	-1.48	0.14
Neuroticism	10.40	4.80	8.67	4.97	1.67	0.09
Problem-solving	7.09	1.72	7.42	1.13	-0.99	0.32
Distraction-positive	7.61	2.90	6.85	1.84	1.30	0.19
Distraction-negative	1.61	1.32	2.82	1.98	-3.83	<0.001
Acceptance- redefinition	8.00	1.60	7.07	1.82	2.63	0.01
Faith-religion	2.75	1.98	1.96	1.42	1.95	0.05
Blame-denial	4.08	2.24	4.00	2.07	0.16	0.86
Social-support	3.99	1.10	3.92	1.08	0.26	0.79

*Proforma scoring five and above on lie score were excluded.

SD: Standard Deviation

Table 5: Independent t-test for low and high lie score

Personality and coping styles	Low lie score (n=131)		High lie score (n=36)		t	p
	Mean	SD	Mean	SD		
Extraversion	12.68	3.87	12.08	3.42	0.85	0.39
Neuroticism	10.03	4.87	6.94	4.19	3.46	<0.001
Problem-solving	7.16	1.61	7.36	1.31	-0.68	0.49
Distraction-positive	7.45	2.72	7.77	2.99	-0.62	0.53
Distraction-negative	1.87	1.55	1.41	1.90	1.47	0.14
Acceptance-redefinition	7.80	1.68	7.66	2.04	0.40	0.68
Faith-religion	2.58	1.89	2.41	1.84	0.46	0.64
Blame-denial	4.06	2.19	3.38	2.01	1.65	0.10
Social-support	3.97	1.09	4.13	1.29	-0.75	0.45

SD: Standard Deviation

were used moderately while faith-religion and distraction-negative were used sparsely.

There was no gender difference noted in domains of personality; but, it was noted in use of coping styles. Males used distraction-negative more often whereas females used faith-religion more. Males used more of alcohol and other substances as ways of coping, which is negative way of self-distraction. Similar scenario is a common clinical finding.[14] Females used more of religious methods (consisted of praying/ bhajans or faith-based solutions like astrology). This trend is common in Indian context and was noted in an earlier study too.[15] Masiak *et al.*[16] also reported the presence of gender difference in use of coping styles in their study.

Psychoactive substance use was seen in 20% of the sample. The prevalence of substance use in medical students was much higher than seen in Indian general population which is approximately five per cent.[17] Substance use in medical students and professionals are viewed judgmentally. It has an impact on the credibility and effectiveness of the doctor in their clinical practice apart from personal health risk the drug poses.[18] The substance use in medical students could be attributed to various reasons including higher work-related stress, easy availability, and lifestyle.[19] The substance use

problem in medical students is breeding slowly and in coming years could become a menace in medical colleges.[20] Medical colleges in the West are drafting explicit guidelines in this regard. Indian medical schools needs to wake up to realise the trend and to take decisive positive stance in controlling substance use than mere punitive measures.[18] When psychoactive substance users and non-users were compared in our study, substance use had significant correlation with distraction-negative coping. Substance users were inclined on using more of negative ways of self-distraction when stressed. This could mean that psychoactive substances were used to relieve self from stress, through distracting, as if they were stress busters. This indicates the self-medicating behaviour to relieve stress.[18] The group also had poorer use of acceptance-redefinition coping than non-users, which could be interpreted as having difficulty in accepting the situation, coming in terms with it, or trying to approach it with a different perspective. These unhealthy ways of coping reinforce their drug taking behaviour further.[18]

Extraversion had significant positive correlation with distraction-negative coping and negative correlation with acceptance-redefinition coping. In other words, extroverts were more prone to self-distract in unhealthy ways. Eysenck suggested that extroverts are impulsive and prone to easy

distraction.[21] A study shows that extroverts need stronger stimulation for cortical arousal;[22] thus, making them prone for risk taking behaviours such as psychoactive substance abuse.[23] Extroverts, in our study, were less capable of accepting the current situation and coming to terms with it. As a corollary, being introvert allows a person to ponder over the stressful situation and gradually accept it or consider the positive aspects of it. This needs elaborate thought process and is possible in who introspect a lot. A study finds that introverts engage in detailed thinking process, as evident by activated frontal lobe regions, when compared to extroverts.[24] Acceptance of the situation prevents a person from the need to self-distract in counterproductive ways. Though extroverts are inherently outgoing and explore more ways of coping, there was no strong relation with positive coping styles such as social-support in our study. In an earlier study, extraversion was associated with several emotion-focused coping strategies such as redefinition, religion, and catharsis.[25] DeLongis and Holtzman[26] reported that extraversion had association with effective coping, as they utilised cognitive reframing and active problem-solving and social-support strategies. This finding is in contradiction to ours. The contradiction of findings may be due to difference in sample selection, culturally diverse population, and coping strategies also vary with the culture.

Neuroticism had positive correlation with problem-solving coping style. A neurotic individual attempts to solve the problem using rational thinking and planning with varying degree of success. Anxious individuals were found to be indulging in problem-focused coping.[27] Distraction-positive and distraction-negative were also associated with increased neuroticism, meaning that a neurotic person is involved in self-distractions in both adaptive and maladaptive ways. Faith-religious coping was used copiously by neurotic people such as praying, bhajans, astrology, and other spiritual means. And lastly, neuroticism had association with blame-denial coping, where neurotic individuals involved in either blaming self or others, deny the existence of problem, or think some sort of miracle would relieve the problem; indulgence in excessive wishful thinking is a known faulty coping mechanism. It is hard not to notice that neuroticism is associated with many coping patterns in an indiscriminate way to both adaptive and maladaptive coping strategies. This would indicate that increase in neurotic trait increases the anxiety levels and different types of coping strategies were elaborated with loss of discretion among them as adaptive or maladaptive coping styles. Neuroticism was associated with coping styles such as problem-focused coping,[27] cognitive restructuring and acceptance, distraction-negative, denial,[28] self-blame and avoidance coping in earlier studies.[29] Neuroticism was also associated with disordered approach to work, higher levels of stress, and emotional exhaustion in study done on doctors.[30]

The study sample was divided into two groups on the basis of lie score in EPI. One group consisted of lie score of below five and the other, five and above. Though the group scoring high on lie score were excluded from other analysis as mentioned earlier, it was compared with low lie score group on personality and coping styles. It was found that people with higher lie score had lower neuroticism. Similar

findings were reported earlier too.[31] In EPI, lie scores are measured based on the number of 'socially desirable answers'. The questions to determine lie score elicit socially desirable answering tendency which people would seldom do in actual situation. These questions are framed in such a way that they identify the impractical and unrealistic responses, and regard them as lies. It means that people reporting low neuroticism actually gave socially desirable responses than their realistic behaviour.[31] As identifying one's own neurotic feelings and reporting it probably made them so uncomfortable that they resorted to hide it by giving socially desirable responses. By doing so, they are preventing its detection and subsequent addressing it which is detrimental even more.[32]

There are certain limitations to this study. The study was done as a cross-sectional assessment. The sample selection was done through opt-in method; so, probability of like-minded, psychologically oriented people participated. As questions were about prior life experiences, there could be a possibility of recall bias. Also, the study relied on the information given by the participants and no external validation could be done; so, data could have reporting bias as well. Some strengths of the study are: lie score was a component of one of the questionnaires which helped to screen out socially desirable responses from genuine responses. Each participant was assessed on individual basis, and feedback was given to them about their scores and guidance on self-development.

Conclusion

Medical interneers had personality scores that fall in ambiversion and mixed neurotic traits on EPI. Psychoactive substances were used in one-fifth of the sample. Personality and substance use had significant impact on the type and frequency of the coping styles used by the students. Extroverts had increased risk of using maladaptive coping styles. Neuroticism evoked number of coping styles in an indiscriminate way; highly neurotic people elaborated more number and mixed type of coping strategies. Psychoactive substance use was associated with maladaptive coping styles. Gender difference was noted in coping styles used; males used more of distraction-negative coping and females used more of faith-religion based coping styles.

Implication

The coping styles have vital role in relieving stress. Stress management in a healthy way is paramount in improving mental health of the students as they undergo stressful phase. Though being an important life skill, it is neither taught nor discussed in our educational system. Students develop their own ways to handle stress either by mimicking parents, teachers, and peers or by self-experimentation on trial and error basis which might land them with inappropriate, maladaptive, and ineffective ways. This further has impact on their lifestyle choices. It is observed that coping strategies that are beneficial for some individuals may be less effective for others. Choice of effective coping style is based on their personality.[33] Our study along with earlier studies suggest that personality determines the type of the coping strategies used and the ability to implement it by constraining or facilitating use of specific strategies. Personality can

also indirectly influence the nature and severity of stress experienced.[28] Psychoactive substance use was high in medical students as compared with general population. Substance use not only affects their educational achievement but also has heavy impact on their professional career and personal life. Substance use also influenced the choice of coping strategies. Therefore, it is necessary to create awareness among students about their problematic substance use behaviour, their personality traits, and using of coping styles best suited to them. This knowledge can also be beneficial in addressing the origin of stress, its perception, and discussing regarding effective ways in handling it. Coping skills training and stress management strategies embedded in the medical education curriculum will aid medical students in mitigating the inevitable work pressure, emotional turmoil that they face, and psychoactive substance use potential, especially during their early years of career when they have to handle multiple roles and challenges outside their comfort zone.

AUTHOR CONTRIBUTIONS

KH contributed in concepts, design, definition of intellectual content, literature search, data acquisition, statistical analysis, interpretation of the data, manuscript preparation, manuscript editing, manuscript review, final approval of the version, and accountability for all aspects of the work; SCY contributed in concepts, design, definition of intellectual content, interpretation of the data, manuscript preparation, manuscript editing, manuscript review, final approval of the version, and accountability for all aspects of the work; SB contributed in concepts, design, definition of intellectual content, statistical analysis, interpretation of the data, manuscript preparation, manuscript editing, manuscript review, final approval of the version, and accountability for all aspects of the work.

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