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# Effect of Insomnia and Distress on Emotional Intelligence and Coping Strategies Among Medical College Students

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## ABSTRACT

**Objective:** Present study focused on the Effect of Insomnia and Distress on Emotional Intelligence and Coping Strategies among Medical College Students. **Study Design:** Cross-sectional, questionnaire based. **Settings:** Different medical colleges in Punjab, Pakistan. **Period:** October 2016 - July 2017. **Patients and methods:** sample of medical students was purposely drawn and questionnaires were administered. **Results:** Insomnia had significant positive relationship with psychological distress and maladaptive coping, and significant negative relationship with adaptive coping. However, insomnia was found to have non-significant negative relationship with emotional intelligence. Furthermore, results showed that psychological distress had significant negative correlation with overall coping and adaptive coping but had significant positive relationship with maladaptive coping. Yet psychological distress had non-significant relationship with emotional intelligence. Additionally, study further showed that emotional intelligence had significant positive relationship with adaptive coping but had significant negative relationship with maladaptive coping. Multiple regression analysis showed that insomnia and psychological distress were significant predictors of coping (adaptive and maladaptive). Additionally, no significant gender differences were found however students differ significantly in terms of birth order. **Conclusions:** Insomnia has significant positive relationship with psychological distress and coping but non-significant relationship with emotional intelligence. Additionally, insomnia and psychological distress were significant predictors of coping (specifically maladaptive).

**Keywords:** Insomnia, psychological distress, coping, emotional intelligence.

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## INTRODUCTION

Sleep has been considered historically as the major physiological need required for healthy psychological and physical functioning in humans as well as animals. Sleep can be defined as an active, repetitive reversible condition associated with perceptual disengagement from environment, unresponsiveness for ones surroundings[1, 2]. Lack of sleep or clinically termed as insomnia in DSM IV-TR and DSM V is related with disruptive psychomotor and neurocognitive functioning3, daytime exhaustion[4], problems in mood[5], depression, anxiety[6] in addition to inadequate work efficiency in all aspects of life even in youth.[7, 8] In Pakistan medical students (approximately 40%) are considered as an important section of our youth now a days[1,9]. Medicine studies though are considered to be very technical / tough but put some real psychological pressures on health of students. Empirically it has been highlighted previously that medical college students have multiple social adjustment issues[10] related to family[11,4], work and school, emotional problems[8], poor physical health[12,13] (sleep deprivation, low levels of physical activity, comorbid medical conditions, night time micturition[9]), and psychological issues i.e., psychological distress[1], anxiety and depression[6]that influence their learning capacity[14], scholastic performance and patient consideration[3].

Empirical evidences yield that the challenges students have to face in becoming physicians are mostly emotional and academic in nature e.g., academically students' initial encounter with dead bodies and illness make them more vulnerable to multiple psychological issues[15], emotional detachment[7,14]and sleep deprivation that is much prevalent among them[6, 19, 20]. On the other hand, few students may react opposite by becoming highly emotionally intelligent, adaptive for change and caring for others[16]. Here their reaction to these traumas varies due to the effect or of insomnia /sleep deprivation and psychological distress upon their EI and Coping mechanism[10,17]. Literature asserts that for personal growth some stress is required, but severe amount of stress results in loss of coping ability among students. So, adaptive or maladaptive coping skills used by students during medical school can affect their professional maturity in future[1]. It can cause psychological distress, emotional disturbances, memory problems and decrease in efficiency / ability to concentrate which results in ultimate decline in academic performance. Moreover, response to stressful conditions is also related to one's psychological makeup, gender[21], personality characteristics, brought up style, family environment and birth order[22]. Specifically, first borns show high levels of symptoms whenever faced with an anxiety-arousing condition as they have difficulty finding others with whom to share the experience as compare to middle and last born who

immediately refuge themselves under social support of elder[22]. Thus, it is evident that though medical students are the cream yet despite their personality attributes and other environmental factors they are one of the most vulnerable populations to insomnia because of their work load and professional requirements that are new for them and difficult to deal for the first time.[6]

Keeping in view the above context present study was carried out to find effect of insomnia and distress on emotional intelligence and coping strategies of medical college students. It was further intended to explore the differences in terms of gender and birth order on variables of study as additional to have deeper understating of phenomena in indigenous context.

## METHODOLOGY

**Study Design:** The cross-sectional research

**Place of Study:** Different Medical Colleges of Lahore, Gujarat and Sargodha city.

**Duration of Study:** October 2016- July 2017.

**Methods:** A purposive sample of total 369 medical students inclusive of both male and female within the age range of 19-30 years was selected for the present study from Sargodha Medical College Sargodha, Nawaz Shreef Medical College Gujarat and Akhter Saeed Medical and Dental College, Behria town, Lahore. Only those students were considered as sample of study who were studying in 1st, 2nd, 3rdand 4th year of medicine studies.

**Instruments:** A detailed self-constructed demographic data sheet was applied to gather demographic information of the medical students including, gender, number of siblings, birth order, place of residence (hostel/home), family system (joint / nuclear), daily routine study hours (less than 4hrs / more than 5 hours), year of study (1st /2nd/ 3rd/ 4th year) and monthly family income (less than 50,000PKR / above 50,000PKR). The Urdu translated version of self-rated Pittsburgh Sleep Quality Index (PSQI)[23](translated and adapted by researcher) was used to assesses sleep quality and disturbances over a 1-month time interval among medical students. It contains 19 individual items generating seven "component" scores. The sum of scores for these seven components yields one global score where a total sum of 5 or more indicates “poor” quality of sleep. Psychological distress was measured through already Urdu translated version[25] of The Kessler Scale of Psychological Distress (K10)[24]. It has 10 items and response format is five-point Likert scale ranging from 1 to 5 where total score is obtained by adding all responses. Maximum score (i.e., 50) indicate severe distress and minimum score (i.e., 10) indicate no distress.

Brief Urdu translated[27] version of Cope inventory[26]was used to measure coping strategies of medical students. The scale consists of 28 items with response 4-point Likert scale format ranging from 1 = I haven’t been doing it at all to 4 = I have been doing it a lot; and divided into two main categories of coping strategies i.e., adaptive and maladaptive coping. Current study measured emotional intelligence with the Urdu translation of 16 items Wong and Law Emotional Intelligence Scale[28]. This is a trait base EI scale and response format is on 6-point Likert scale ranged from “strongly disagree” to “strongly agree”. The maximum scores obtained through scale could be 96 and minimum score could be16. Maximum score yielded (i.e., 96) high level of EI, whereas low score (i.e., 16) correspond to low level of EI.

**Protocol:** Present study was conducted after formal approval of departmental research and ethics committee decision followed by Advance Research Board, University of Sargodha. After wards sample was selected from different medical colleges by obtaining formal consent from the concerned authorities. All the students were contacted directly by the researcher and were elucidated about the purpose / objectives of study; informed consent of participants was obtained prior to test administration and confidentiality of data collected from them was assured. There was no fix time for administration although average time was 25 to 30 minutes. Respondents were acknowledged and thanked for their cooperation and participation in the study.

**Data Analysis:** Collected data was scrutinized and incomplete or randomly filled questionnaires were discarded; data was entered in datasheets of SPSS version 21. Pearson correlation and multiple regression analysis were computed to check relationship and prediction respectively. Level of significance was set as $p < 0.05$.

## RESULTS

Results of the collected data from 369 medical students showed that male students were 32.5% (n= 120) of total sample whereas female medical students were 67.5 % (n = 249). Around 65.9% (n = 243) were hostalized and 34.1% (n = 126) were day scholar students. 37.1% (n = 137) were 1st born; 42% (n = 155) were middle born and 20.9% (n = 77) were last born. 73.2% (n = 270) were living in nuclear family setup whereas 34.1% (n = 126) were living in joint family setup. 57.2% (n = 211) studied daily study for less than 4hrs whereas 42.8% (n = 158) has the routine to study more than 5 hrs daily.

**Table 1: Pearson correlation between variables of the study variables (N = 369)**

| Variables | M | SD | α | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|---|
| Insomnia | 1.28 | .43 | .80 | - | | | | | |
| Psy.Dis | 25 | 9.53 | .91 | .26** | - | | | | |
| Coping | 61.05 | 12.95 | .86 | -.11** | -.39** | - | | | |
| Adaptive | 37 | 8.2 | .80 | -.06 | -.24** | .89** | - | | |
| Maladaptive | 24 | 6.66 | .80 | .14** | .46** | .84** | -.51** | - | |
| EI | 64.58 | 16.58 | .92 | -.09 | -.06 | .27** | .39** | -.05 | - |

*Note. Psy* Dis = Psychological distress; EI = emotional intelligence. *p < .05, ** p < .01,

Results in Table 1 show that insomnia and psychological distress has significant positive relationship with maladaptive coping; whereas psychological distress has significant negative relationship with adaptive coping and emotional intelligence. Although relationship between insomnia with adaptive coping

and emotional intelligence is negative but is not significant. Moreover, results also reveal that emotional intelligence has significant positive relationship with overall coping and specifically adaptive coping.

**Table 2: multiple regression showing insomnia and distress as predictors of coping strategies and emotional intelligence (N = 369)**

| | Adaptive Coping | | | Maladaptive Coping | | | Emotional Intelligence | | |
|---|---|---|---|---|---|---|---|---|---|
| Variables | *B* | $R^2$ | *F* | *β* | $R^2$ | *F* | *β* | $R^2$ | *F* |
| Insomnia | .07 | .06 | 12.13*** | .15** | .23 | 55.15*** | -.04 | .005 | .854 |
| Distress | .23*** | | | .44*** | | | -.05 | | |

**$p$ < .01.***$p$< .001.

To explore contributions of insomnia and psychological distress in coping strategies, multiple regression analysis was carried out. Table 2 suggested that 6% of the variance in adaptive coping can be explained by a model comprising constructs of insomnia ($R^2$ = .06, $p$ < .001). Overall the model was significant {$F$ (3, 366) = 12.13, $p$ < .001}

Table 2 also demonstrated the effect of constructs of insomnia and psychological distress in maladaptive coping and explained that 23% of the variance was resulted by a model. ($R^2$ = .23, $p$ < .001). Overall the model was significant {$F$ (3, 366) = 55.15, $p$ < .001}. Finally, as showed in Table 4, the model do not explained any variance in emotional intelligence ($R^2$ = .005).

**Other Additional explorations from this Study**

Gender difference on all study variables were found to be non-significant, whereas to find out the effect of birth order ANOVA was computed and findings are demonstrated below:.

**Table 3: Mean, (S.D) standard deviation and values of F for birth order within medical students on variables of the study (N = 369)**

| Variab-les | 1st born ( *n* = 137) | | Middle born ( *n* = 155) | | Last born ( *n* = 77) | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | *M* | *SD* | *F* | $\eta^2$ | *Post hoc* |
| SQ | 23.28 | 6.01 | 22.77 | 6.09 | 24.19 | 5.91 | 1.44 | .00 | 1>2 <3 |
| Dis | 26.76 | 9.23 | 23.41 | 9.23 | 25.08 | 10.22 | 4.57** | .02 | 1>2 >3 |
| AC | 37.67 | 8.08 | 36.82 | 8.48 | 36.22 | 7.84 | .84 | .00 | 1>2 >3 |
| MC | 25.15 | 6.81 | 23.03 | 6.57 | 24.10 | 6.31 | 3.72* | .02 | 1>2 <3 |
| EI | 64.84 | 16.21 | 65.53 | 16.67 | 62.19 | 16.57 | 1.07 | .00 | 1<2 <3 |

*Note*. SQ = sleep quality; Dis = distress; CS = coping scale; AC = adaptive coping; MC = maladaptive coping; EI = emotional intelligence. *$p$ < .05.**$p$< .01.

Results in Table 3 indicate significant mean differences on distress {$F$ (3, 366) = 4.57, $p$< .05} which shows that level of distress is high in 1st born child. Further results indicated significant mean difference on maladaptive coping {$F$ (3, 366) = 3.27, $p$< .05} which indicates that1st born children adopt more maladaptive coping strategies whereas all other findings were non-significant.

## DISCUSSION

Present study findings were related to the quest about effect of insomnia and psychological distress on coping and emotional intelligence among medical students. Results revealed that insomnia has strong positive relationship with psychological distress and maladaptive coping among medical students. These findings also confirmed the previous empirical research findings which asserts that lack of sleep or poor quality of sleep i.e., insomnia is positively linked with depression and psychological distress.[1,10,14,17] A longitudinal research also found that insomnia as indicator of greater risk for psychiatric distress in young men that persists for at least 30 years.[2,4,16] Present research also found that psychological distress had significant negative relationship with adaptive coping and emotional intelligence which was also supported by previous studies. Present findings were in line with existing literature, for example, it was found that in transition periods of adolescence and youth, cognitive or emotional excitement is linked with endless stress, and neuroendocrine activation that underlies chronic insomnia.[1,8,21] Current study found a non-significant negative relationship of insomnia with adaptive coping and emotional intelligence. On the similar note non-significant negative relationship was found between EI and psychological distress. Some of previous studies in same vein, showing an indirect relationship between psychological distress was observed with emotional intelligence and coping style which predicts psychological distress.[17,18] Similarly, another study[22]found no direct relation between EI and psychological distress. However, empirically it was evident that sleep is an essential body need and plays vital role for ones coping ability to combat daily life stressors and to regulate one's emotions. Therefore, insomnia or deprivation of sleep prone one to be more sensitive towards stressful events with heightened emotional arousal.[29] Another study[3] found that in medicine training students are at higher risk of developing secondary stress disorder without gaining skills like emotional intelligence during their professional training; as it was further found that higher EI will be related to better coping and application of such coping styles which are effective in such technical field.

Multiple regression results of present study also revealed that insomnia and psychological distress were the significant positive predictors of maladaptive coping among medical students. It seems quite logical because sleep disturbance supposedly reduces the performance of individual and this increase the distress and tend to rely on maladaptive coping strategies. These findings are confirmed by previous literature as among medical student sleep disturbances and distress are

the most prevalent problems[6,19,20] which negatively effects their emotional well-being and adaptability towards environment[10,17]. Meta-analysis review further showed that students perceived high psychological stress across the world. Moreover this review analysis proposed that problem-based learning (PBL) which focuses active, student-oriented learning, student independence, small team-work and the development of skills related to problem solving and interpersonal communication proved to be helpful for medical students[30].Researches also presumed that self-reported sleep duration from the previous night negatively relate with seriousness of subjective psychological distress, while positively relate with high perceived emotional intelligence. More sleep was connected with high psychological and emotional strength.[29]

Results of current study further revealed significant positive relationship between emotional intelligence and adaptive coping that was also in line with the previous research findings[9,10 ,16]that have confirmed that among multiple types of coping; high dependence on task-oriented coping was associated with lower levels of stressand more of emotional strength. Literature also concluded that students who adopted active style of coping experienced low psychological distress, high self-esteem and more emotional well being[1]. Research also confirmed that people with low EI were poor at maintaining their focus on adaptive coping and so applied more passive coping styles under stressful circumstances. In line with this view, it was suggested that people with high EI used more adaptive as compared to maladaptive coping strategies when exposed to stress[23].

Present study is distinctive from the previous ones as it additionally explored the phenomena in indigenous context with some analyses on demographic characteristics of students i.e., gender and birth order. T-test analysis revealed non-significant gender differences across all variables of study. Many past researches have also impressed non-significant gender differences in distress level, coping, and emotional intelligence[29] despite the contrary held belief that women are less emotionally intelligent, more of distressed and less capable to handle stressful situations. The reason may be that nature of medicine studies is equally burdensome and stressful for both male and female. Moreover, within the environmental context of college the specific life style they adopt equally push them to learn the ways to be resilient towards stressful events by incorporating emotional intelligence.

Present study ANOVA analysis revealed interesting results with reference to mean differences in terms of medical students' birth order. It was evident that level of psychological distress was significantly high in 1st born medical students and were using more maladaptive coping as compared to middle and last born students. These findings were also in support previous researches which confirmed that first borns' were more psychologically distressed, more aggressive, have less emotional well-being while facing the anxiety-arousing condition because due to societal pressure as to be always in a mode of strong role model they hesitate and have difficulty finding others with whom to share the experience as compare to their counterparts of middle and last born who immediately look upon and consult their immediate social agents[22 ,31].

## CONCLUSION

Insomnia has significant positive relationship with psychological distress and coping but non-significant relationship with emotional intelligence. Additionally, insomnia and psychological distress were significant predictors of coping (specifically maladaptive).

### Limitations and Implications

Cross-sectional research design of present study limited us to consider and study the causal relationships among variables under study. That's why; another prospective research was needed for study of these relationships. As the present study utilized self-report measures, they have a disadvantage that they are liable for social desirability.

The results of the present study can help the clinical psychologists, teachers, students and administration to have better understanding of different psycho-social problems which are faced by the students and to find out the new and innovative ways to tackle these issues and providing opportunities for students to deal with these issues and improve their lifestyles.

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