CHAPTER 3

METHODOLOGY
3.1. Aim

The main aim of the present investigation is to examine the psychosocial determinants of coping social support, resilience and dispositional optimism and academic specific determinants of perceived academic control and academic motivation in relation to medical students’ stress.

3.2. Primary Objectives

a) To compare the differences between 1st, 2nd, 3rd and 4th year medical students in overall stress and various areas of stress.

b) To compare the differences between 1st, 2nd, 3rd and 4th year medical students on psychosocial variables such as coping strategies, social support, resilience and dispositional optimism.

c) To compare the differences between 1st, 2nd, 3rd and 4th year medical students on academic specific determinants such as perceived academic control and academic motivation.

d) To examine the degree to which psychosocial variables such as coping, social support, resilience and dispositional optimism determine stress in medical students.

e) To examine the degree to which academic specific determinants such as perceived academic control and academic motivation determine stress in medical students.

3.3. Secondary Objectives

f) To study whether dispositional optimism will mediate the relationship between coping and stress.

g) To study whether perceived academic control will mediate the relationship between dispositional optimism and stress.

h) To study whether resilience will mediate the relationship between academic motivation and stress.
3.4. Null Hypotheses
For the present study the following Null Hypotheses have been formulated.

a) There will be no difference between 1\textsuperscript{st}, 2\textsuperscript{nd}, 3\textsuperscript{rd} and 4\textsuperscript{th} year medical students on total stress and various areas of stress.

b) There will be no difference between 1\textsuperscript{st}, 2\textsuperscript{nd}, 3\textsuperscript{rd} and 4\textsuperscript{th} year medical students on psychosocial variables such as coping, social support, resilience and dispositional optimism.

c) There will be no differences between 1\textsuperscript{st}, 2\textsuperscript{nd}, 3\textsuperscript{rd} and 4\textsuperscript{th} year medical students on academic specific determinants such as perceived academic control and academic motivation.

3.5. Alternate Hypotheses
Following are alternate hypotheses formulated for the study:

d) Utilization of problem focused strategies will predict lower stress.

e) Utilization of emotional coping strategies will predict higher stress.

f) Utilization of avoidant coping strategies will predict higher stress.

g) Higher level of social support will predict lower stress.

h) Greater amount of resilience will predict lower stress.

i) Higher dispositional optimism will predict lower stress.

j) Greater perceived academic control will predict lower stress.

k) Higher intrinsic motivation will predict lower stress.

l) Higher extrinsic motivation will predict higher stress.

m) Higher amotivation will predict higher stress.
3.6. Supplementary Alternate Hypotheses

n) Optimism will mediate the relationship between different types of coping and stress.

o) Perceived academic control will mediate the relationship between optimism and stress.

p) Resilience will mediate the relationship between academic motivation and stress.

3.7. Study Design and Sampling Method

A cross-sectional survey design and purposive sampling method was employed for the current study.

3.8. Sample

The sample consisted of medical students from 1st, 2nd, 3rd and 4th years of MBBS studying at Kasturba Medical College, Manipal, Manipal University.

In order to study the relation between stress and determinants in this study it was decided to recruit 125 students to every year.

This is as per Harris’ suggestion (cited in Carmen, Wilson & Morgan, 2007) for using regression equation, which says that for using six or more predictors, an absolute minimum of 10 participants per predictor variable is appropriate.

Two hundred students in each year were handed over the questionnaires. Subsequently, after leaving out questionnaires with many unfilled responses, the final sample had 143 students in first year, 161 students in second year, 127 in third year and 117 in fourth year.

3.9. Inclusion Criteria:

1. Male and female undergraduate medical students between 17-30 years of age studying in Kasturba Medical College, Manipal.

2. Students consenting to participate in the study.

3.10. Exclusion Criteria:

1. Students who did not consent to participate in the study.
3.11. Pilot Study

Pilot study was conducted on 33 students in small groups by administering modified scales. As per the suggestion of Institution’s Scientific Committee preliminary face validation of the measures of the study was carried out. The tools were examined by 14 raters. Three of the examiners were experts in the subject and faculty in the Department of Psychiatry and Clinical psychology while rest of the examiners were Post Graduate students of Psychiatry and Clinical Psychology having adequate knowledge of the subject matter. Accordingly, the modifications, deletion and addition of items were done.

Scales were administered to 11 students in 2nd MBBS, 12 students in 3rd MBBS and 10 students in 4th MBBS. Students were requested to comment on applicability and comprehensibility of items and offer any other suggestions related to the questionnaires. Time taken for the administration of scales ranged from 30 minutes to 45 minutes.

A surface inspection of the answered questionnaires revealed that 2-3 items were reported to be difficult to understand by students. Few missing data were also evident. Six students were contacted and interviewed to elicit the probable reasons for missing data. The reasons given were: overlooking of items, insufficient space between questions (reported mainly in two scales), difficulty in comprehending the meaning of items and confusion between choices of answer. One student reported that he missed filling up of items as he was in a hurry to leave.

The following steps have been taken to rectify the errors. All the scales except scale measuring stress were opined as having sufficient face validity by the experts with the suggestion to make the meaning of answer choices more clearer and spaced out. This was done. The questionnaire measuring the main variable of the study (stress) was modified to make it suitable to current settings (details of this are given under the description of the measure). Questions have been spaced adequately and note has been added on scales asking the subjects to check whether all items have been filled.

All the scales were subjected to reliability analysis with a sample of 80 students (20 students from each study year). The Cronbach’s alpha values for each measure is reported under the scales section.
3.12. Procedure

The students studying in 1st, 2nd, 3rd and 4th year MBBS course of Kasturba Medical College, Manipal, were recruited to the study after obtaining ethical clearance and permission from the Dean of institution.

The students of each year were approached separately in small groups. The researcher briefed about the purpose of the study to all students, and informed them that participation in the study was voluntary, and that should they choose not to take part, this would not be held against them in anyway. The students were then handed over the subject information sheet and written consent form. Students who gave written consent to participate were given socio-demographic proforma to fill in biographical details and questionnaires. General instructions were given on how to fill up the questionnaires. Anonymity and confidentiality of all participants who took part in the study was guaranteed. The students were requested to clarify any doubts they had regarding answering questionnaires. The researcher was present during the administration and assisted in clarifying doubts.

Care was taken so as not to administer the questionnaires during stressful periods such as examinations.

Also, the students wanting to seek further assistance were invited to contact the researcher for additional support or intervention.

Data collection for this study was carried out from 2010 to 2012.

3.13. Scales

3.13.1. Socio-demographic proforma. This was developed by the researcher to collect the socio-demographic details such as age, gender, religion and nationality.

3.13.2. Professional student environmental stress survey. Murphy, Gray, Sterling and DuCette (2009) used the above modified version of the Dental Environmental Stress questionnaire, compiled by Westerman, Grandy, Ocanto and Erskine in 1993, as the original template for their survey study comparing stress in medical and dental students. The questions were revised so that they applied to the clinical and didactic aspects reflecting a neutral health care setting. Westerman et al. had earlier made revisions to
Garbee, Zucker, and Selby's (1980) original format to make the survey suitable to their study.

Murphy et al. (2009) revised the questions so that they applied to the clinical and didactic aspects of both medical and dental school training. To reach this goal, questions that addressed dental training and dentistry were changed to be applicable to a more neutral health care setting. The main purpose of the question however was left intact. Following this, the items were jointly reviewed by dental and medical school administrators to confirm their face validity as predictors of professional school stress.

The number of questions was reduced to thirty-four questions from the thirty-eight questions in Westerman et al.'s version of the DES instrument. The four questions that were removed were reviewed carefully and considered inapplicable by the authors. An additional three questions were added to determine the demographic variables of gender, year in school, and type of professional training.

The thirty-four questions asks respondents to indicate the level of stress associated with each item, and are presented in a multiple-choice format with responses as follows: 0=not pertinent, 1=not stressful, 2=slightly stressful, 3=moderately stressful, and 4=very stressful.

A factor analysis was conducted by Murphy et al. (2009) which resulted in the survey question responses being grouped into five causal categories: academic performance, faculty relations, patient and clinical responsibilities, personal life issues, and professional identity. Alpha coefficients calculated for each of the stress-causal categories are as follows: Academic Performance- .754; Patient and Clinical Responsibilities- .747; Faculty Relations- .767; Personal Life Issues- .741; Professional Identity- .723 and Total Scale- .875

Description of the stress causal categories:

**Academic performance.** The items here measure stress experienced as a response to students’ efforts to meet academic performance requirements. Competition to get higher grades, heavy workload, fear of failure etc., are some of the academic pressures experienced.
Patient and clinical responsibilities. The areas that come under this category are stress caused by factors, such as responsibilities for comprehensive patient care and difficulty in learning clinical procedures.

Faculty relations. The items here measure stress due to relationship difficulties with faculty, such as inconsistent feedback from faculty and perceptions of receiving unjustified criticism and non-conducive learning environment.

Personal life issues. Items here address stress caused from personal life problems, such as lack of time for rest and relaxation, financial difficulties and fewer opportunities for social and recreational activities.

Professional identity. This category addresses stress caused by demands of having to develop a professional demeanour. Lack of confidence about professional identity and insecurity about professional future are some of the items here.

The questionnaire was reduced to 29 questions from the 34 questions of Murphy et al.’s (2009) Professional Student Environmental Stress Survey. Three questions were eliminated following careful reviewing by the researcher and the suggestions made by the subject experts who made the face validation of the tool. The remaining two questions were deleted following the concern raised about the objectionable nature of the questions by the scientific committee of Kasturba Medical College. One more item in an open ended format was introduced asking the students to specify any other stressors the students experienced which the questionnaire failed to address. Additionally, few modifications were made to some items to ensure relevance and clarity.

In the academic performance category, the item “amount of cheating in professional school” under academic performance category was eliminated as this was considered sensitive by the college scientific committee. Also, in the item “Fear of failing a course, a scholastic year, or a licensing exam” the words ‘licensing exam’ was removed as students do not require a separate licensing exam to practice as clinicians once they pass their under graduation.
Under personal issues category, items such as “having children at home”, “forced postponement of marriage, engagement, or having children” and “having a dual role of spouse/parent/partner and student/professional” were eliminated. They were not considered relevant as in the Indian cultural context it is unlikely for majority of the students in professional courses to have been married and having children. In the item “Marital/relationship adjustment problems”, the word marital was removed for the same reason mentioned above and examples for relationships were included to enhance clarity. The question “Discrimination due to race, class status, ethnic group, or sexual orientation” was also removed as per the suggestion of the scientific committee which felt that the question was opinionated in nature.

In order to facilitate better comprehension, modifications were made by replacing some words by words of more common usage. For instance, words such as ‘living quarters’ were replaced by living place/hostel and the word ‘school’ was replaced by ‘college’.

Reliability testing to measure the internal consistency of this scale in this study was done with a sample of 80 students (20 students from each study year). The whole scale and subscales demonstrated good reliability. Cronbach alpha values for the whole scale and subscales are as follows: Total Scale, $\alpha = .92$; Academic Performance, $\alpha = .76$; Patient and Clinical Responsibilities, $\alpha = .69$; Faculty Relations, $\alpha = .79$; Personal Life Issues $\alpha = .69$; and Professional Identity $\alpha = .73$.

### 3.13.3. The coping orientation of problem experience inventory (Brief COPE)

Coping styles were measured by Brief COPE (Carver, 1997) which is a 28 item shortened version of the original 60 item cope developed by Carver et al. in 1989 to measure the coping styles people generally use in times of stress. This measure is composed of 14 scales, with 2 items per scale, with a four-point Likert scale (1 - I usually don’t do this, 2 - I usually do this a little bit, 3 - I usually do this a medium amount, 4 - I usually do this a lot).

All the scales of Brief-COPE have acceptable internal reliability as their values exceed .50. In fact, values of all scales exceed .60. Infact all scales exceed value of .60 except for venting, denial and acceptance (Carver, 1997)
The 14 subscales can be grouped into three major types of coping: problem-focused coping, emotional coping and less useful/avoidant coping. It instructs participants to indicate what they normally do and feel when they experience stressful events.

Problem-focused coping can be conceptualized as problem-solving or doing something to alter the source of the stress, while emotion-focused coping can be understood as reducing or managing the emotional outcomes/distress that is associated with the stressor. Less useful/avoidant coping can be described as striving to ignore or not dealing with a stressor.

The coping strategies were classified into problem focused coping, emotion focused coping and avoidant coping as previously categorized by Wilson, Pritchard, and Revalee (2005). However, substance use which was categorized by these authors under emotion-focused coping was put under the category of avoidant coping as it was felt that it was more of an avoidant coping mechanism.

Following is the description of types of coping:

**Problem-Focused Coping**

*Active coping:* This involves actively attempting through direct actions in stepful manner to remove or reduce the effects of stress (Carver et al., 1989).

*Planning:* Planning consists of thinking about how to cope with a stressor. It involves figuring out action strategies and steps on how to effectively deal with a given problem (Carver et al., 1989).

*Use of instrumental support:* Instrumental support seeking involves seeking support for instrumental reasons that may actively help in dealing with stress. This involves seeking advice, assistance, or information (Carver et al., 1989).

**Emotion-Focused Coping**

*Use of emotional support:* Seeking emotional support involves taking support for emotional reasons and includes receiving sympathy, understanding and moral support from others (Carver et al., 1989).
Acceptance: Acceptance is salient in situations in which the stressor requires one to accommodate to it in contrast to situations where the stressor is amenable to change (Carver et al., 1989).

Venting of emotions: Venting of emotions involves paying attention to one’s emotional distress and a tendency to express or ventilate those feelings.

Turning to religion: Resorting to religion to cope with the stressor.

Humour: Using humour to deal with the stressor.

Self-blame: Blaming oneself for the occurrence of stress.

**Avoidant Coping**

Denial: Refusal to accept the reality of a stressful situation.

Behavioural disengagement: Reducing one's effort to deal with the stressor, or giving up the attempt to attain goals with which the stressor is interfering.

Self-distraction: Attempting to distract one’s self from thinking about the behavioural dimension or goal with which the stressor is interfering by methods such as day dreaming, excessive sleeping, etc.

Substance use: Involves trying to relieve distress caused by the stressor by resorting to use of drugs or alcohol.

The whole scale showed acceptable internal consistency (Cronbach’s alpha, \(\alpha=.74\)). However, while most of the subscales demonstrated acceptable reliability (substance use, \(\alpha=.75\); self-blame, \(\alpha=.64\); instrumental support, \(\alpha=.73\); active coping, \(\alpha=.60\); humour, \(\alpha=.79\); planning, \(\alpha=.60\); emotional support, \(\alpha=.75\); behavioural disengagement, \(\alpha=.60\); positive reframing, \(\alpha=.67\); religion, \(\alpha=.79\)). Some of the subscales such as denial, acceptance and venting and self-distraction had Cronbach’s alpha value of less than .50. In fact, Carver’s standardization study also showed Cronbach’s alpha value of less than .50 for venting, denial and acceptance (Carver, 1997).

The Cronbach’s alpha values for broader coping dimensions are as follows: Problem-based coping, \(\alpha=.72\); Emotion-based coping, \(\alpha=.67\); and avoidance based coping, \(\alpha=.60\).
3.13.4. College student social support scale (CSSSS). CSSSS was used to measure social support from friends and family. It is a 26 item scale developed by McGrath, Gutierrez, and Valadez (2000) and is specific to the college population for ages between 18 to 31. The CSSSS is a reliable measure of college student social support as reported by its author (McGrath, et al., 2000). CSSSS was developed based on the idea that social support can be conceptualized in terms of how an individual perceives availability of support and also receives actual supportive behaviors from people in his social network that will end up being beneficial to that individual. This definition allows for the amalgamation of the two groups of social support researchers: Those concerned with available or perceived support, and those concerned with enacted or received support. CSSSS is so designed that it measures both available and received support. The CSSSS assesses college student social support through a series of 10 scores. There is an Overall score that assesses the overall support that a student receives from friends and family. “Support from Friends” is factor 1 and “Support from Family” is factor 2. There are three subscale scores that assess the amount of support that is available (Availability), received (Received), and how helpful that support is (Helpfulness). Finally, there are six factor scores, three focused on the Availability, Received, and Helpfulness from friends, and three focused on the same types of support from family.

While scoring, all not applicable (N/A) answers are counted as blanks and not as zeros. If there are over 25% N/A answers, the scale is invalid. Further, if there are over 95% identical responses, the scale is also invalid.

The CSSSS has high internal consistency scores ($\alpha = .91$ for the Overall score; $\alpha = .91$ to .93 for Subscale scores), and adequate 1-week test-retest reliability scores ($r = .91$) for the Overall score and $r = .86$ to .91 for the Subscale scores) (McGrath et al., 2000).

In this study CSSS demonstrated good internal consistency ($\alpha = .96$ for the Overall score; $\alpha = .97$ for factor “Support from Friends”, $\alpha = .80$ for factor “Support from Family”, $\alpha = .90$ for total availability of support, $\alpha = .89$ for total helpfulness of support and $\alpha = .89$ for total received support.)
Additional 3 items have been devised by the researcher to measure the support received from faculty or teacher guardian which has very good internal consistency (Cronbach’s alpha, $\alpha=.91$).

3.13.5. The 14-item resilience scale (RS-14). Resilience can be defined as the ability to manage stress and to prevail despite adversity. Resilience was measured by the 14-Item Resilience Scale (RS-14) developed by Wagnild (2010). It is a shortened version of the Wagnild and Young's (1993) 25-item psychological resilience scale and has sufficient reliability and validity. The RS-14 has demonstrated reliable convergent validity as well as an invariant factor structure (Nishi, Uehara, Kondo, & Matsuoka, 2010; Wagnild, 2010). The total scale internal consistency was found to be good in this study (Cronbach’s alpha, $\alpha=.82$).

3.13.6. Life orientation test-revised (LOT-R). Optimism was assessed by using Life Orientation Test-Revised (LOT-R) devised by Carver and Scheier (Scheier, Carver & Bridge, 1994). This is a revised version of Life Orientation Test (LOT), (Scheier & Carver, 1985) which was an early measure of optimism and pessimism. The LOT consisted of 8 coded items, plus fillers. Half of the items are about optimism and other half of items are about pessimism. Respondents indicate their extent of agreement or disagreement with each item on a multi-point scale. Though the LOT had good psychometric properties, it was criticized as the optimistic and pessimistic item sets formed two factors that were not always strongly inter-related (e.g., Chang, D’Zurilla, & Maydeu-Olivares, 1994; Marshall & Lang, 1990). Subsequently, it was also seen that some of the items asked about things slightly different from expectations per se.

Accordingly, Life Orientation Test-Revised came into being (Scheier et al., 1994). The LOT-R is briefer than the original (6 coded items, 3 framed in each direction). In the revision some items were omitted and some rewritten. The LOT-R has good internal consistency (Cronbach’s alpha runs in the high .70s to low .80s) and is quite stable over time. Owing to the item overlap between the LOT and the LOT-R, both of the scales are highly correlated (Scheier et al., 1994). However, the positive and negative item subsets of the LOT-R are more strongly related to each other than were those of the LOT. Given these various considerations, the LOT-R is preferred over the original LOT.
The LOT-R has been used in empirical research and has shown adequate convergent, discriminant, and construct validity. The 10-item scale (4 filler items) assesses generalized expectancies for positive versus negative outcomes. Participants indicate to what extent they agree with each item on a scale from 1 (strongly disagree) to 5 (strongly agree). Sample item: "In uncertain times, I usually expect the best."

In this study, LOT-R as a whole scale was seen to have minimum acceptable reliability (Cronbach’s alpha, α=.55). The subscale optimism also had minimum acceptable reliability (Cronbach’s alpha, α=.55), while subscale pessimism had low reliability (Cronbach’s alpha, α=.31).

3.13.7. Perceived academic control (PAC). Perceived academic control is a sense of influence over academic outcomes. This was measured by PAC which is a nine item scale developed by Perry et al. (2001) to measure the student’s perceived control over his/her academic outcomes. This questionnaire is a more recent attempt to measure locus of control as it applies to academics. The scale established acceptable internal consistency in this study (Cronbach’s alpha, α=.70).

3.13.8. Academic motivation scale (AMS). Motivation was measured by The Academic Motivation scale (AMS; Vallerand, et al., 1992; 1993) which is the English version of the French scale Echelle de Motivation en Education. This multidimensional scale measures intrinsic motivation, extrinsic motivation and amotivation. Intrinsic motivation has three sub types namely, intrinsic motivation towards knowledge, accomplishments, and stimulation. Extrinsic motivation has three subtypes namely extrinsic motivation - external, introjected and identified regulation. The scale contains 28 items (4 items per subscale) assessed on a 7-point scale (1 - not at all to 7 - exactly).

Following is the description of main constructs and subscales of the scale.

Intrinsic motivation (IM). Intrinsically motivated behaviours are those behaviours which are performed for their own sake for the pleasure and satisfaction derived from them rather than any external reward or other external reasons.
Following are the subtypes of IM:

*Intrinsic motivation to know.* This refers to motivation driven by eagerness for knowledge and satisfaction derived by new learning.

*Intrinsic motivation to accomplish.* This refers to motivation with the aim of achieving high or excelling in studies.

*Intrinsic motivation to experience stimulation.* This refers to motivation derived from the stimulation or heightened pleasure coming by pursuing study related activities.

*Extrinsic motivation (EM).* Extrinsic motivation refers to doing something for reasons that are external to the activity itself. EM actually refers to a family of motivations that vary in their level of autonomy.

Following are the subtypes of EM:

*External regulation.* These are behaviours, the underlying motivations of which have not been internalized by the person but rather are heteronomous. This type of EM is evidenced when individuals’ behaviour is motivated by the desire to obtain a reward or to avoid punishment.

*Introjected regulation.* This refers to behaviours that are performed on account of internal pressures such as obligation and guilt. The reasons for doing something are somewhat endorsed by the person but in a controlled fashion.

*Identified regulation.* These behaviours are the ones whereby individuals identify with the reasons for performing a behavior.

*Amotivation (AM).* This refers to the lack or absence of motivation and is observed when individuals do not perceive the contingencies between their actions and their consequences.

The AMS has been found to be reliable and valid (Vallerand et al., 1992, 1993). Some researchers also classify these scales under autonomous, controlled, and amotivation types of motivation.
The AMS demonstrated good internal consistency in this study. The standardized Cronbach alpha values for the whole scale and subscale are as follows: Total Scale, $\alpha = .87$; IM to know, $\alpha = .82$ IM to accomplish, $\alpha = .72$; IM to experience stimulation, $\alpha = .63$; EM- External regulation, $\alpha = .80$; EM- Introjected regulation, $\alpha = .77$; EM- Identified regulation, $\alpha = .74$; and Amotivation, $\alpha = .89$;


The study was treated with SPSS version 15. The following analyses were done.

3.14.1. Chi-square

Chi-square analysis was done to find the differences between four study years on the distribution of categorical socio-demographic variables of gender, nationality, and religion. The same test was also applied to find out the differences in distribution of severity of stress between the four years of medical education.

3.14.2. Correlation Analyses

In the present study, Pearson’s correlation analyses were done to examine the relationship between stress and stress categories on one hand, and psychosocial and academic variables on the other hand. Spearman’s correlation analyses were carried out where ever the subscales of the test used had small range of scores.

3.14.3. One Way Analysis of Variance and Kruskal-Wallis-H test

These tests were used to find out the overall differences between the four study years on stress and stress categories, psychosocial and academic variables.


Follow-up tests for One Way Analysis of Variance were done by applying Bonferroni correction. Follow-up tests for Kruskal-Wallis-H test were done by Mann-Whitney U test.

3.14.5. Multiple Regression Analyses

In order to find out the best predictors of stress and stress categories from multiple psychosocial and academic variables, multiple regression analyses by step-wise method was conducted.
3.14.6. Mediational Analyses

To test for mediating effects for the proposed relations, Baron and Kenny approach (1986) was used which puts forth certain conditions to be met:

1) A regression analysis showing that the independent variable (X) significantly predicts the outcome variable (Y).

2) A regression analysis showing that the independent variable (X) significantly predicts the mediator variable (M).

3) A regression analysis to show that the mediator variable (M) significantly predicts the outcome variable (Y).

4) A regression analysis is conducted with both the X and M entered as predictors of Y.

The intention of the first three steps is to establish the presence of zero-order relationships among the variables. If any one of these relations doesn’t reach significance level, it is concluded that mediation has not occurred. However, there are many disagreements about this and alternative considerations in deciding a mediation effect (MacKinnon, Fairchild, & Fritz, 2007).

It is considered full mediation when effect of X on Y controlling for M reaches zero and becomes non-significant. Also, the effect of M should remain significant after controlling for X.

On the other hand if the effect of X reduces but doesn’t reach zero and sometimes remains significant, (i.e., both X and M both significantly predict Y), then a partial mediation is assumed to have occurred.

Though Baron and Kenny approach demonstrates whether mediation is present or not, but it does not tell us the magnitude and significance of the mediation effect.

Therefore, follow-up analyses was done using Med Graph program (Jose, 2013) which not only reports the effect size measures such as the magnitude of the mediator effects (indirect effects) on the dependent variable. It also gives the Sobel test result which determines whether the mediation observed is significant.