ORIGINAL ARTICLE

Health-Promoting Lifestyle Habits among Preclinical Medical Students

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ABSTRACT

Background: Health-promoting activities and a healthy lifestyle are major strategies to preserve health.
Aim: To determine the predictors of health-promoting lifestyle behaviors among preclinical medical students in a Malaysian University by using HPLP-II questionnaire.
Study design: Descriptive cross-sectional study
Methodology: Data was collected from a convenience sample of 166 students using a validated questionnaire survey including a sociodemographic section and consisted of six sub-scales of 52 questions which included health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management. The lifestyle habits were measured by using a four-point Likert scale. The mean score for each sub-scale was expressed as mean+SD (standard deviation).
Results: The overall mean scores for health-promoting lifestyles among preclinical medical students was 128.31±20.29, which can be considered at an intermediate level. Among the six subscales of the HPLP-II, spiritual growth had the highest mean score, followed by interpersonal relations, while physical activity had the lowest mean subscale score. Significant differences were found in physical activity by gender and ethnicity.
Conclusion: The present study demonstrated that preclinical medical student with overall healthy lifestyle habits at an intermediate level. Those students who stayed with their families were more responsible towards own health habits. Thus, more emphasis should be directed towards encouraging the students to develop better and healthy lifestyle habits.
Keywords: Health promoting lifestyle profile, health responsibility, health behaviour, medical students

INTRODUCTION

Health is generally defining as a resource for everyday life and a positive concept emphasizing social and personal resources along with physical capabilities. The Constitution of the World Health Organization in 1946 (WHO) states that health is a state of complete physical, mental and social well-being, and not only the absence of disease or infirmity[1]. The organization has stated that 60% of an individual's health-related quality of life depends on his or her lifestyle[2].

Lifestyle habits are one of the most important factors affecting the health[3]. Health-promoting lifestyle habits are defined as "a multi-dimensional pattern of perceptions that enforce individual to stay healthy while preventing themselves from diseases"[4]. In addition, the health-promoting lifestyle habits are mainly based on nutritional values, spiritual growth, taking the responsibility of one's own health, exercising physically, interpersonal relations, and stress management[5]. Humans need to develop healthy lifestyle in order to improve their quality of life as well as protect their health[6].

In fact, young people mainly university students are going through transitional period of growth and development that bridges adolescence and adulthood which actually influence their later risks. This period sees many rapid changes in physical, psychological and also in social relationships[7]. Some of the illnesses can hinder their ability to grow and develop their full potential such as tobacco use, lack of physical activity, unprotected sex and exposure to violence can jeopardize not only their current health, but their later life[8]. Unhealthy lifestyle habits, persistent behavioral risks, poor basic sanitation, and new emerging diseases are contributing to a deadly mix that is changing the classic picture of healthy youth[9].

In medical institutes, the faculties aim to educate the students, so they can inform the society and also treat individual disease conditions as well as provide advice on how to continue a healthy lifestyle in the future. They should be educated in a way so they can take care of their own health, and also be exemplary role models to their society. Besides, the medical health science students should be enlightened and their knowledge about this subject should be

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occasionally tested starting in the first year of the academic year[10].

According to the Malaysian National Health and Morbidity Survey reported in 2011, 27.2% of adults, 18 years and above are obese while 15.2% have diabetes, 32.7% have hypertension and 35.1% have hypercholesterolemia are most common risk factor of coronary heart disease (CHD)[11]. In Malaysia, study indicates that prevalence for moderate to severe stress, anxiety and depression among Malaysian medical students are 16.6%, 55.5% and 30.7% respectively are higher than non-medical students which directly lead to suicidal tendency, medical dropout, burnout and health problem[12].

In Malaysia, many institutions of higher learning as well as the Ministry of Health provide training to ensure that all the health science students are well-educated, empathetic and more prepared for their workforce. However, no study yet to examine the level of health-promoting behaviors among Malaysian medical students and thus there are limited evidence based information. Thus, it is necessary to ascertain whether the medical students in Malaysia are maintaining healthy lifestyles as their lifestyle habits keep changing over times. Therefore, the aim of this descriptive cross-sectional study was carried out to provide latest information and statistics on fundamentals regarding health-promoting lifestyle habits among preclinical medical students in a Malaysian university.

MATERIALS AND METHODS

Study Population: This is a descriptive cross-sectional study design.The preclinical medical students (total 166 participants with 52 and 114 from first year and second year, respectively) from the Faculty of Medicine who were pursuing their preclinical studies at SEGi University, Kota Damansara campus were the study population as well as sample, eligible to participate in the study. This study excluded the four research investigators who were from 1st year MBBS program, clinical medical students, and the students who quitted the preclinical medical program (2 participants), were not available during the questionnaire survey (26 participants), and given inappropriate answers in the questionnaire (6 participants). Finally, the response rate came out 79.5% (total 132 participants).

Study Instruments:A self-administered questionnaire was used for data collection. It was composed of two parts. In the first part, there were socio-demographic characteristics such as age, gender, ethnicity, staying with family, academic year, alcohol drinking, cigarettes smoking, height and weight. In the second part, the health promoting lifestyle habits were evaluated with validated health-promoting lifestyle profile (HPLP-II) subscales.

The HPLP was initially developed by Walker *et al* in 1987[13]and later revised as HPLP-II (1995) with 6 subscales: spiritual growth (9 items), health responsibility (9 items), physical activity (8 items), nutrition (9 items), interpersonal relations (9 items), and stress management (8 items). Each subscale can be used independently[14]. All items of HPLP-II are affirmative, with no reverse questions. The answers were given within a four-point Likert-type scale, where ratings of “never”, “sometimes”, “often”, and “routinely” are scored as 1, 2, 3, and 4 points, respectively. The total HPLP-II score ranges from 52 to 208. Higher scores indicated a healthier lifestyle.

Data Collection: The survey was conducted from 1st August till 6th August, 2016. The questionnaires were prepared, distributed and collected from the students by the four research investigators in the classroom. The processes of filling the questionnaires were done in 20 to 25 minutes. The consent form included information about the purpose, importance and procedure of the study and an invitation to participate.Here, we used convenience sampling techniquefor data collection.

Ethical Consideration: Ethical approval was obtained from the author of HPLP II questionnaire. Following clearance was obtained from members of Faculty of Medicine, SEGi University,KotaDamansara campus. Brief explanation about the study was provided at the cover page of the questionnaires while instructions were stated clearly to the respondents on how to fill it up. Written consent form was obtained from all the participants. They were informed that participation was voluntary. All information provided in questionnaire would be kept confidential and data will be used only for research purposes. Participants were reminded not to write their name and other personal identification numbers on the forms. All participants were free to withdraw from study at any time. Strict anonymity and confidentiality was maintained throughout the process of data collection and analysis.

Statistical analysis: All statistical analyses were performed using SPSS version 22. Descriptive statistics were conducted to describe all the continuous (mean and standard deviation) and categorical variables (frequency distributions and percentages). The differences in the total mean score of six subscales including overall HPLP between the two groups were compared using independent *t*-test, while multiple groups were compared by one-way analysis of variance (*ANOVA)* with post hoc comparison by the Tukey test as appropriate. A two-tailed *p*-value of <0.05 was regarded as statistically significant.

RESULTS

The demographic characteristics of the study participants are presented in Table 1. The evaluation was conducted with 132 preclinical medical students. Based on the table, the mean age of the total participants was 21.25 (±1.36) years. Among the participants, 50 of them were MBBS year 1 students (37.9%) whereas 82 of them were MBBS year 2 students (62.1%). The participants were composed of 47 (35.6%) males and 85 (64.4%) females. Majority of the participants were Malays (37.9%), followed by Chinese (18.9%), Indian (17.4%) and other races (25.8%), respectively. 36.4% of the participants were staying with family while majority of them were not (63.6%). About 6.8% of the participants were smoking cigarette while 9.8% were drinking alcohol. The mean of BMI was 23.10 (±4.70) kg/m^2.

Among the male participants, majority of them were Malays (34%). About 61.7% were not staying with family. 6 participants smoked cigarette (12.8%) and 5 participants drank alcohol (10.6%), respectively. According to the female participants, majority was Malays (40%). 64.7% were staying with family. Beside this, 3.5% of female participants involved in cigarette smoking, while 9.4% were drinking alcohol.

The HPLP-II findings among the participants based on gender are shown in Table 2. It was found that total average score of physical activity by gender (male 18.72; female 16.71) was found significant difference (*p*-value=0.03). The differences between gender and total mean score of other five subscales (health responsibility, nutrition, spiritual growth, interpersonal relations and stress management) including overall HPLP (52 items) were not significant.

The HPLP-II findings among the participants based on ethnicity are reported in Table 3. The total average scores of physical activity was highest 19.03±4.90 (other ethnic participants), with the lowest 15.96±4.06 (Chinese participants) and the *p*-value is 0.03. *Post hoc* comparisons showed that there were marginal significant differences between participants from other ethnic background with Chinese (*p*-value = 0.05) and Indian (*p*-value = 0.07), respectively (data not shown). Also, we found total average scores of physical activity female from Malay (16.65±3.16) and other ethnic background (17.80±5.02) were comparatively lower than their male counterpart (Malay *p*-value = 0.01; other ethnic background *p*-value =0.08, data not shown).

Table 4 shows the HPLP-II findings among the participants based on staying with family. There was significant difference between the participants staying with family and their health responsibilities (*p*-value = 0.03). Participants staying with family showed higher mean score of health responsibility (20.19±4.40) compared to those did not stay (18.45±4.53).

The HPLP-II findings among the participants based on cigarette smoking status indicated that there were statistically significant differences among smokers and non-smokers regarding their total mean scores of health responsibility (*p*-value=0.01) and spiritual growth (*p*-value=0.01) as well as overall mean scores of HPLP (*p*-value=0.004). However, there were marginal significant differences found in total mean scores of nutrition (*p*-value= 0.08) and interpersonal relations (*p*-value=0.07) between smokers and non-smokers (data not shown).

Table 1: Demographic characteristics of the study participants

Characteristics	Total participants (n=132)	Male participants (n= 47)	Female participants (n= 85)
Age (y), mean (±SD)	21.25 (±1.36)	21.15 (±1.32)	21.31 (±1.39)
Gender			
Male	47 (35.6 %)		
Female	85 (64.4 %)		
Ethnicity			
Malay	50 (37.9%)	16 (34.0%)	34(40%)
Chinese	25 (18.9%)	12 (25.5%)	13(15.3%)
Indian	23 (17.4%)	5 (10.6%)	18(21.2%)
Others	34 (25.8%)	14 (29.8%)	20(23.5%)
Staying with family			
Yes	48 (36.4%)	18 (38.3%)	30(35.3%)
No	84(63.6%)	29 (61.7%)	55(64.7%)
Academic year			
MBBS year 1	50(37.9%)	18 (38.2%)	32(37.6%)
MBBS year 2	82 (62.1%)	29 (61.7%)	53(62.4%)
Cigarette smoking			
Yes	9 (6.8%)	6 (12.8%)	3(3.5%)
No	123 (93.2%)	41 (87.2%)	82 (96.5%)
Alcohol drinking			
Yes	13 (9.8%)	5 (10.6%)	8(9.4%)
No	119 (90.2%)	42 (89.4%)	77(90.6%)
BMI (kg/m²), mean (±SD)	23.10 (±4.70)	24.26 (±4.38)	22.46 (±4.77)

SD denotes standard deviation; n denotes number of participants; BMI denotes body mass index

Table 2: HPLP-II findings among the study participants based on gender

HPLP and subscales	Total participants(n=132)	Male participants(n= 47)	Female participants(n= 85)	*p*-value*
	Mean (±SD)	Mean (±SD)	Mean (±SD)	
Health responsibility (9 items)	19.08 (±4.54)	19.36 (±4.84)	18.93 (±4.39)	0.60
Physical activity (8 items)	17.42 (±4.64)	18.72 (±5.41)	16.71 (±4.01)	0.03
Nutrition (9 items)	20.91 (±4.52)	21.74 (±4.83)	20.45 (±4.30)	0.11
Spiritual growth(9 items)	25.83 (±5.53)	26.15 (±6.03)	25.66 (±5.26)	0.63
Interpersonal relations (9 items)	24.53 (±5.24)	24.40 (±5.15)	24.60 (±5.32)	0.84
Stress management (8 items)	20.53 (±4.40)	21.00 (±4.55)	20.27 (±4.31)	0.36
Total HPLP scores (52 items)	128.31 (±20.29)	131.38 (±21.22)	126.61 (±19.68)	0.20

SD denotes standard deviation; * denotes independent *t*-test

Table 3: HPLP-II findings among the study participants based on ethnicity

HPLP and subscales	Malay participants (n= 50)	Chinese participants (n=25)	Indian participants (n=23)	Other participants (n= 34)	*p*-value*
	Mean (±SD)	Mean (±SD)	Mean (±SD)	Mean (±SD)	
Health responsibility (9 items)	19.90 (±3.91)	19.48 (±4.80)	17.39 (±3.88)	18.74 (±5.40)	0.16
Physical activity (8 items)	17.72 (±4.36)	15.96 (±4.06)	16.00 (±4.81)	19.03 (±4.90)	0.03
Nutrition (9 items)	20.90 (±4.91)	21.68 (±3.67)	19.52 (±4.43)	21.29 (±4.52)	0.37
Spiritual growth (9 items)	25.72 (±4.97)	25.16 (±5.81)	25.52 (±5.91)	26.71 (±5.99)	0.73
Interpersonal relations (9 items)	25.82 (±4.63)	23.84 (±5.26)	24.35 (±5.90)	23.26 (±5.42)	0.14
Stress management (8 items)	20.92 (±4.26)	19.92 (±4.06)	20.17 (±5.25)	20.65 (±4.34)	0.79
Total HPLP scores (52 items)	130.98 (±19.43)	126.04 (±16.82)	122.96 (±23.35)	129.68 (±21.64)	0.41

SD denotes standard deviation; * denotes one-way*ANOVA*-test

Table 4: HPLP-II findings among the study participants based on staying with family

HPLP and subscales	Staying with family (n = 48)	Staying without family (n = 84)	*p*-value*
	Mean (±SD)	Mean (±SD)	
Health responsibility (9 items)	20.19 (±4.40)	18.45 (±4.53)	0.03
Physical activity (8 items)	17.35 (±3.63)	17.46 (±5.15)	0.89
Nutrition (9 items)	21.44 (±3.38)	20.61 (±5.05)	0.26
Spiritual growth (9 items)	25.81 (±4.87)	25.85 (±5.91)	0.97
Interpersonal relations (9 items)	24.48 (±5.04)	24.56 (±5.38)	0.93
Stress management (8 items)	20.27 (±4.10)	20.68 (±4.57)	0.61
Total HPLP scores (52 items)	129.54 (±16.65)	127.61 (±22.17)	0.60

SD denotes standard deviation; * denotes independent *t*-test

DISCUSSION

This is the first study to explore the sociodemographic, health-promoting lifestyle habits and their related factors among the preclinical medical students in a Malaysian university. In fact, medical students are the future doctors of tomorrow to serve the communities and countries. The University authorities, public health professionals and policymakers should help and provide services to maintain health-promoting lifestyle habits for better health responsibility among the Malaysian medical students.

The actual engagement in maintaining healthy lifestyle habits were reflected by the HPLP-II scores. Based on our study, the overall mean scores for health-promoting lifestyles among preclinical medical students was 128.31(±20.29), which can be considered at an intermediate level and similar to that of students in Jordan[15] (127.87±19.91) as well as medical students (127.9±18.2) in Turkey[10]. The total HPLP-II mean scores of our sample were higher than that reported in a previous Turkish study (123.12±16.51)[16]. However, our overall HPLP-II had a lower mean score compared to some previous studies among medical science students in Iran (135.17±18.00)[17]and nursing students in Turkey (131.98±17.16)[18]. Furthermore, previous international studies with moderate HPLP-II mean score of Likert scale were reported from college freshman in Mexico[19] (2.47±0.35), students in Japan[20] (2.50±0.29), nursing[21](2.46±0.34) and dental students (2.49±0.32) in Turkey[22], respectively. In Malaysia[23], a previous study on nursing students also estimated a moderate HPLP-II mean score of Likert scale 2.58±0.33.

Studies evaluating the influence of gender on health habits of university students have yielded a consistent result. Current study showed that males performed a significantly higher level of physical activity compared to the females. This result was consistent with those studies reported in Mexico[19], Iran[24], Hong Kong[25] and India[26]. This finding indicated that our preclinical female students had a sedentary lifestyle. Low levels of physical activity among them may be due to various factors, including low self-efficacy on exercise, unsafe playground environment, insufficient walking tracks around the university campus and lack of engagement in regular physical fitness activities. In fact, physical activity is

among the most effective element in promoting healthy habits and enhancing the quality of life. Thus, health promotion planning is crucial to motivate students for regular physical activity so as to promote own health and prevent diseases. Also, our study showed that female students from Malay and other ethnic background were reported to have significantly lower physical activity habits than their male counterpart.

On the other hand, the result of our study showed that students staying with their family were significantly more responsible to own health than those did not stay. This result is consistent with those found in Japan[20],Turkey[21]and Iran[24]. For this reason, student must stay with their family to maintain better health responsibility under supervision of their family members.

The results of our study reflected that among the students, non-smokers had significantly higher total mean scores of health responsibility, spiritual growth and overall health-promoting lifestyle habits than smokers. Our results were supported by the previous studies that took place in Turkey[10] and Iran[17]. Research done in Turkey by Kurt AS also found that the total mean scores of health responsibility and spiritual growth among non-smoking students were significantly higher than those of smokers[16]. However, our findings of cigarette smoking had produced results which could have occurred by chance as there were only nine smokers among the study sample.

The strengths in our current research study are clearly shown in various aspects. Here, we used cross-sectional study design which is purely descriptive and used to assess the frequency and distribution of particular variables in a defined population. This research study is also relatively inexpensive and takes up little time to conduct. The validated questionnaire used with high reliability; alpha reliability coefficient 0.92 (0.70-0.90). Throughout the study, we excluded the four research investigators, participants who were quitted the program, not available during period of questionnaire survey and did not answer the questionnaire sincerely as to minimize bias. After exclusion, the respondent rate of study is still relatively high (79.5%). Also, our study provides useful information for the participants who showed moderate health habits toward overall health-promoting lifestyle habits (128.31±20.29) which is useful to create awareness among students in possessing a healthy lifestyle habits. The data of our study was collected from preclinical medical students which is the first cross-sectional study done in Malaysia.

This study has some limitations such as use of convenience sampling method in recruiting students from a single university that may not represents the study population. We collected self-reported data only once to assess health habits which limits the generalizability of the findings due to potential information bias. Another limitation is that our data shows some of the participants were lacking of interests and sincerity for their desired responses. Therefore, it is possible that some of the participants might not have the opportunity to discuss any difficulty faced by them in understanding the questions. However, the cross-sectional design of this study does not explain and interpret causation and changes over time in lifestyle habits among these students. Thus, there is a need for research that follows students from their freshman to senior years to track changes in health-promoting lifestyle habits.

CONCLUSION

This study evaluated health-promoting lifestyle habits based on HPLP-II questionnaire among Malaysian preclinical medical students. According to our findings, preclinical students demonstrated overall healthy lifestyle habits at an intermediate level. However, the level of physical activity among the students was found to be relatively lower compared to other health habits. Our findings suggested some useful information regarding the students' health-promoting lifestyle habits compared with their sociodemographic characteristics. Current study, demonstrated that among the students, males and those from other ethnic background had relatively higher level of physical activity. Moreover, students who stayed with their families were more responsible towards own health habits. In the line of our study results, more emphasis should be directed towards encouraging the students to develop better and healthy lifestyle habits. Future research study should be done to follow-up students from their freshman to senior years as to track changes in health-promoting lifestyle habits. More emphasis should be given on perception of current health status, school culture, parents' education and socio-economic status to determine their contribution on healthier lifestyle habits among preclinical medical students.

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REFERENCES

1. Larson JS. The World Health Organization's definition of health: Social versus spiritual health. Social Indicators Research, 1996;38:181-192.
2. The WHO cross-sectional study of health behaviour in school-aged children from 35 countries: findings from 2001-2002. J Sch Health, 2004;74(6): 204-206
3. Bi J, Huanh Y, Xiao Y, Cheng J, Li F, Wang T *et al*. Association of lifestyle factors and suboptimal health status: a cross-sectional study of Chinese students. BMJ Open, 2014; 4(6):1-9.
4. Tol A, Tavassoli E, Shariferad GR, Shojaeezadeh D. Health-promoting lifestyle and quality of life among undergraduate students at school of health, Isfahan University of Medical Sciences. J Educ Health Promot, 2013;2(11):29-32.
5. Bidlack WR. Interrelationships of food, nutrition, diet and health: the national association of state universities and land grant colleges white paper. J Am CollNutr, 1996; 15(5): 422-433.
6. Komduur RH, Korthals M, te Molder H. The good life: living for health and a life without risks? On a prominent script of nutrigenomics. Br J Nutr, 2009;101(3):307-316.
7. Coming of age: From facts to action for adolescent sexual and reproductive health. World Health Organization (WHO), Geneva, Switzerland, 1997;1 :11-12.
8. Adolescent: health risks and solutions. Fact sheet of World Health Organization (WHO). 2016.
9. Youth and Health Issues. In World Youth Report, 2003: 99-129.
10. Nacar M, Baykan Z, Cetinkaya F, Arslantas D, Ozer A, Coskun O*et al*. Health promoting lifestyle behaviour in medical students: a multicentre study from Turkey. Asian Pac J Cancer Prev, 2014; 15(20): 8969-8974.
11. National Health and Morbidity Survey, Malaysia 2011. Institute for Public Health, 2011.
12. Teh CK, Ngo CW, Zulkifli RAB, Vellasamy R, Suresh K.Depression, anxiety and stress among undergraduate students: A cross sectional study. Open Journal of Epidemiology, 2015;5:260-268.
13. Walker SN, Sechrist KR, Pender NJ.The health-promoting lifestyle profile: development and psychometric characterizations. Nurs Res, 1987;36(2): 76-81.
14. Walker, Susan N.; Sechrist, Karen R.; Pender, Nola J. The health-promoting lifestyle profile II [HPLP-II] (Adult Version). Omaha, NB: College of Nursing, University of Nebraska Medical Center, 1995.
15. ShaheenAM, Nassar OS, Amre HM, Hamdan-Mansour AM. Factors affecting health-promoting behaviors of university students in Jordan. Health, 2015;7:1-8.
16. Kurt AS. The relationship between healthy lifestyle behaviors and health locus of control among nursing and midwifery students. American Journal of Nursing Research, 2015; 3(2):36-40.
17. Mahmoodi G, Jahani MA, naghavian M, Nazari A, Ahmadi N. A study of health-promoting behaviors of medical sciences students of Islamic Azad University of Sari, Iran 2013. Iran J of Health Sci, 2014;2(2): 52-57.
18. Kara B and Iskan B. Predictors of health behaviors in Turkish female Nursing students. Asian Nurs Res, 2016;10(1): 75-81.
19. Diez SMU and Perez-Fortis A. Socio-demographic predictors of health behaviors in Mexican college students. Health PromotInt, 2010;25(1):85-93.
20. Wei CN, Harada K, Ueda K, Fukumoto K, Minamoto K, Ueda A. Assessment of health-promoting lifestyle profile in Japanese university students. *EnvironHealth Prev Med,* 2012; 17(3): 222– 227.
21. Can G, Ozdilli K, Erol O, Unsar S, Tulek Z, Savaser S*et al*. Comparison of the health-promoting lifestyles of nursing and non-nursing students in Istanbul, Turkey. *Nurs and Health Sci* 2008; 10(4):273-280.
22. Peker K and Bermek G. Predictors of health-promoting behaviors among freshman dental students at Istanbul University. *J Dent Educ* 2011;75(3):413-420.
23. Geok SK, Yusof A, Lam SK, Japar S, Leong OS, Fauze MSO. Physical activity and health-promoting lifestyle of student nurses in Malaysia. Journal of Biosciences and Medicines,2015;3:78-87.
24. Mehri A, Solhi M, Garmaroudi G, Nadrian H, Sighaldeh SS. Health promoting lifestyle and its determinants among university students in Sabzevar, Iran. *Int J of Prev Med,* 2016; 7(1): 65-70.
25. Lee RLT and Loke AJ. Health-promoting behaviors and psychosocial well-being of university students in Hong Kong. Public Health Nurs, 2005; 22(3): 209-220.
26. Suraj S and Singh A. Study of sense of coherence health promoting behaviour in north Indian students. Indian J Med Res, 2011;134(5): 645-652.