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A Cross Sectional Study on Hypochondriasis and Health Anxiety Among Medical Students in a Private Medical College in Malaysia

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Abstract

Hypochondriasis is a medical condition which disseminates slowly into medical students, manifesting fear and concern of one's self towards their own bodily health. The objective of this study is to instill awareness onto medical students about hypochondriacal disorder, determine the association between gender, ethnicity, religion, nationality, current posting, addictions and the fear of diseases among medical students of Melaka-Manipal Medical College Muar Campus, Malaysia. This was an analytical cross sectional study. Self-administered questionnaires consisting of Health Anxiety Inventory (Short Week) were distributed to students who were studying in semester 6 and semester 7. 67 participants (37.22%) present with hypochondriasis while 113 participants (62.78%) did not present with hypochondriasis. Smokers being one of the independent variables that showed positive association to the presence of hypochondriasis in medical students. It was found that smokers are 5.459 times more likely to suffer from hypochondriasis. Of medical students in our college a significant proportion suffered from hypochondriasis. Students that divulge themselves as smokers showed significant association to hypochondriasis with higher incidence compared to non-smokers. There is no significant association of hypochondriasis with other risk factors such as gender, ethnicity, religion, nationality, current posting and alcohol consumption.

Keywords

Hypochondriasis, Medical Students, Malaysia

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1. Introduction

Health has been a major concern of the current society at times however for certain groups of people the constant fear of being ill are so strong even in perfect health to the point that they can't cope with their everyday life. Dwelling in fear of having chronic illness, despite having negative medical tests may be a somatic symptom disorder, also known as illness anxiety disorder. The condition has also been known by other names, including hypochondria, or hypochondriasis.[1]

Hypochondriasis is also known as a nosophobia, medical student's disease and medical studentitits. [2] Diagnostic and Statistical Manual of Mental Disorders (DSM-5) classified this disease with the diagnoses "somatic system disorder" and "illness anxiety disorder". Often hypochondriasis persists even after medical evaluation and seen reassurance from their medical advisers, sometimes requiring needless medical investigations. A common conception is that medical students identify symptoms of undue importance, as a consequence of seeing patients in clinics or having studied about them in lecture classes, and becomes anxious about his or her health.

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The term hypochondriasis refers both to a symptom and to a disorder. Individual hypochondriacal symptoms include disease fears, unfounded beliefs about being sick, preoccupation with one's body, and somatic complaints with no medical explanation. Each of these symptoms can occur individually, as nonspecific secondary features of various other psychiatric disorders. Hypochondriasis also refers to a distinct and specific psychopathologic disorder, in which all the hypochondriacal symptoms occur together, and are not the result of another underlying psychiatric illness. Hypochondriasis in this sense, as a disorder, has a characteristic clinical presentation and secondary features, a typical response to therapeutic interventions, and a predictable course and set of complications. [3]

It is yet to be known that the prevalence of hypochondriasis in the general population as the instruments used previously in large scale did not determine hypochondriasis. However, it has been suggested that the prevalence is between 0.8 and 4.5% in this setting by studies in primary care. Early researchers determined the prevalence of hypochondriasis is between 4 to 25%, but these researches were done before DSM III was developed, thus it is difficult to interpret their results. There is one study conducted by Gureje et al. (n= 25 916) on patients of primary care facilities aged 15 to 65 years old found out that the prevalence of hypochondriasis is 0.8% (2.2% if set aside the reassurance).[4]

An uncontrolled study which is case records- based concluded that around 70% of medical students have baseless medical fears during training. In the second study chosen from medical students in year 1, 78.8% had “medical student disease” history. [5]

A research was conducted in United States and Canada which has stipulated that anxiety in medical students arises due to massive amount of psychological pressure originating from stress of examinations, exposure to new clinical experiences and also competitive environment. [6, 7] This enveloping stress is believed to cause unknown symptom manifestations by enhancing physical sensations through autonomic activation making the individuals more mindful of the state of their body, peculiarly enhancing pain perception. [8]

Due to intensive new exposure to clinical aspects of medical knowledge, medical students are believed to have their perception affected mainly because of expectations and illness beliefs (‘schemata’). This in turn leads to selective attention to specific bodily sensations and areas. [9] The knowledge obtained through clinical practice is also thought to influence symptom interpretation, by allowing medical students to understand the boundaries dividing good health with illness and to re-conceptualize previously neglected symptoms within the context of newly obtained knowledge. [10]

Two small, uncontrolled studies in the 1960s (one of which was based solely on case records) indicated a prevalence of the condition of between 70% and 80% in medical students. [11] Two later studies have shown the phenomenon to be no more pronounced in medical students than in nonmedical students. [12, 13] In 2001, Moss-Morris and Petrie 14 concluded that students in their first year of medical school are hyperaware of their bodies and health.

The association of hypochondriasis with age still remains vague. Certain studies advocate that elderly age group shows dominant signs of hypochondriasis. They are more prone to preoccupation with their bodies and are more likely to elucidate that their physical health is much poorer than that of the younger age group [14-18]. However other studies challenge the stereotypic fact of the elderly age group being more preoccupied with their health and bodily functioning, indicating that hypochondriasis is not more prevalent among them and that they may actually gauge their health more optimistically compared to the younger age group. [19-23]. It has been reported that hypochondriasis is present in 0.4%-14.0% of general medical patients [24-26], and prevalence estimates for the elderly vary between 3.9% and 33.0% [27, 28].

This study consists of variables which associate gender, age, ethnicity, religion, nationality, current postings, and addictions of medical student to presence of hypochondriacal fears or health related anxiety. Medical students in advanced semesters are more equipped with knowledge of pathological diseases. In their clinical postings they are exposed to patients with disease in which signs and symptoms are peculiar. This will be measured through the student’s reassurance seeking from doctors and colleagues. Medical student’s avoidance behavior and cognitive, distress component will be documented through the Health Anxiety Inventory.

To our knowledge, this research has never yet been conducted in Malaysia however the hallmarks are seen in news and media. The variables mentioned above have never been applied onto medical students in Malaysia even though they are more prone to the disorder. To an extent many believed that such psychiatric disorder may be the cause of suicidal death other than work-related stress of people in medical field. Since the exact cause of the disorder is yet to be known, this indirectly expands the research and also limits it. The objective of this study is to instill awareness onto medical students on hypochondriacal disorder, determine the association of semester and medical posting to fear of diseases among medical students of Melaka-Manipal Medical College Muar Campus, Malaysia.

2. Method

2.1. Study design and Setting

The type of study design used was analytical cross sectional study. We used self- administered questionnaires to study the association of gender, age, ethnicity, religion, nationality, current postings and addictions on the prevalence of hypochondriasis amongst medical students. This study is conducted in a private medical college in Malaysia for a duration of 6 weeks, from June 2019 to July 2019.

2.2. Study population

Our college (Malaysia campus) provides 3 different programs which consist of Foundation in Science (FIS), Bachelor in Dentistry (BDS), and Bachelor in Surgery and Medicine (MBBS). The population in which the research is done on are in the MBBS course with a total population of 750 students. In MBBS, there are 10 semesters, in which semester 6 to semester 9 have clinics and lectures, while semester 10 students are shadow housemen. The volunteers who participated in this study belonged to those who are currently in semester 6 and 7.

2.3. Sample Size

The sample size for this research was calculated using was calculated using the finite population formula as shown below.

$$n \geq \frac{NZ_1^2 - {}^{\alpha}/_{2}p(1-p)}{d^2(N-1)+Z_1^2 - {}^{\alpha}/_{2}p(1-p)} \quad (1)$$

Population size, N = 750

Proportion, p = 0.119 (11.9% of students having hypochondriasis in previous study [29])

Error, d = 0.05

Alpha (α) = 0.05

n = Sample size

The minimum sample size number is 133.

We took 30% of non-response percentage into consideration.

The formula used for adjustment for non-response was as follows:

$$n_{final} = \frac{n_{calculated}}{1 - nonresponse\%} \quad (2)$$

$$n_{final} = \frac{133}{1 - 30\%}$$

$$n_{final} = \frac{133}{0.7}$$

$$n_{final} = 190$$

Final sample size including non-response is 190.

2.4. Sampling

In this research, the sampling method used was a non-probability, purposive sampling method. A total of 190 students were chosen from MBBS batch 38 and 39 which are currently studying in semester 6 and semester 7. A self-administered questionnaire was distributed among students who were present on the date of data collection. [35],[43] Students from MBBS programme of all ethnic groups, all ages and both sexes were included. Only students who agreed to provide informed consent were included. However, there were some participants who had to be excluded from this study. They were students who were not present on the day of data collection, who did not complete the SHAI or were not willing to provide informed consent.

2.5. Data Collection

There were 4 components in the questionnaires. They were the basic socio-demographic information and Short Health Anxiety Inventory (SHAI). The basic socio-demographic profile component consisted of gender, age, ethnicity, religion, nationality. Additional questions included in the demographic profile was the current department the respondent was posted to, the semester in which the respondent was studying, and any addiction that the respondent had. The SHAI is a shorter version of the full-length Health Anxiety Inventory. It consists of 18 items. The first section (Items 1 to 14) measured whether the respondent had hypochondriacal fears or health anxiety. Items 15 to 18 were the Negative Consequences section and it measured only the fear of morbidity associated with serious illness. Respondents were given four choices for each item, from (a) to (d). The scorings were: a= 0, b = 1, c = 2, d = 3. [29] As defined by the Improving Access to Psychological Therapies Data Handbook, a cutoff score of 18 or more on the SHAI main section indicates the presence of significant hypochondriacal concerns/ health related anxiety among the study participants. [30] Thus, a candidate can score a maximum score of 54 or a minimal score of 0.

2.6. Data Processing and Analysis

Questionnaire data was entered into Microsoft Excel, and the data was analysed by using Epi info version 7.2.2.16. The hypochondriacal anxiety was measured by calculating the mean and standard division of SHAI. The gender, age, ethnicity, religion, nationality and current posting were processed by calculating their frequency and percentage. Since it is a cross sectional study, the association between the variables is calculated using odds ratio. Chi square was used as the statistical test for this study to measure the relationship between variables. Level of significance allowed for hypothesis testing is 0.05.

2.7. Ethical Consideration

This research was reviewed and approved by the Research Ethics Committee, Faculty of Medicine, Melaka Manipal Medical College (Malaysia Campus). A concise explanation of the objectives of the study and relevant details of the study were submitted along with the questionnaire. An informed consent was obtained from the participants before they started answering the questionnaire. To ensure the study is ethically conducted, no participants were forced and all participants were given option of choosing to take part in the study or not. They were able to withdraw from participation at any given time throughout the course of study rightfully. Finally, all participants were duly informed in the questionnaire that all data and information pertaining to the study will be kept completely private and confidential.

3. Result

Table 1. Sociodemographic characteristics of medical students (n=180).

Variables	n (%)
Age	
≤ 22	65 (36.11%)
> 22	115 (63.89%)
Mean (SD)	22.3 (1.26)
Minimum-Maximum	19-28
Gender	
Male	71 (39.44%)
Female	109 (60.56%)
Ethnicity	
Chinese	39 (21.67%)
Indian	64 (35.22%)
Malay	34 (18.89%)
Others	43 (23.89%)
Religion	
Buddhism	46 (25.56%)
Christian	28 (15.56%)
Hinduism	56 (31.11%)
Islam	39 (21.67%)
Others	11 (6.11%)
Nationality	
Malaysia	141 (78.33%)
International	39 (21.67%)
Current Posting	
Community Medicine	36 (20.00%)
Medicine	31 (17.22%)
Obstetrics and Gynecology	33 (18.33%)
Orthopedics	23 (12.78%)
Pediatrics	27 (15.00%)
Surgery	30 (16.67%)
Smoking	
Yes	8 (4.44%)
No	172 (95.56%)
Alcohol	
Yes	3 (1.67%)
No	177 (98.33%)
Drugs	
Yes	0
No	180 (100%)

We distributed 230 questionnaires to medical students of 6th and 7th semester. However, total of 180 questionnaires were completed and returned. Table 1 represents the sociodemographic characteristics of our participants. Of these, 36.11% of participants aged 22 years and below while 63.89% aged above 22 years. The age range of participants was 19-28 years, with mean age of 22.3 years. 39.44% of our participants were male and 60.56% are female. The ethnicity of our participants were Chinese (21.67%), Indian (35.22%), Malay (18.89%) and others (23.89%) while the religion were Buddhism (25.56%), Christian (15.56%), Hinduism (31.11%), Islam (21.67%) and others (6.11%). 78.33% of participants were Malaysians and 21.67% were International students. Based on current posting, they were posted in community medicine (20.00%), medicine (17.22%), obstetrics and gynecology (18.33%), orthopedics (12.78%), pediatrics (15.00%) and surgery (16.67%). 4.44% of participants were smoking while 95.56% were not smoking. 1.67% of participants have addiction to alcohol while 98.33% did not have addiction to alcohol. 100% of participants did not have addiction to drugs.

Table 2. Hypochondriasis using Short Health Anxiety Inventory (SHAI).

	n (%)
Short Health Anxiety Inventory (SHAI)	
Hypochondriasis Present	67 (37.22%)
Hypochondriasis Absent	113 (62.78%)
Mean (SD)	15.69 (7.20)
Minimum-Maximum	2-43

As per the Short Health Anxiety Inventory (SHAI) cutoff score (18 or above), 67 participants (37.22%) present with hypochondriasis while 113 participants (62.78%) did not present with hypochondriasis. The mean score of SHAI was 15.69 with range score of 2-43. The mean score of Medical Students Disease for Perception scale was 14.19 and Distress scale was 12.95 with both scale range of 5-25.

Table 3. Avoidance behaviors in particular situations.

Avoidance item	Mean (SD)	Minimum-Maximum
Consulting your family doctor	1.34 (2.00)	0-8
Visiting a friend in hospital	0.50 (1.31)	0-8
Visiting a relative in hospital	0.55 (1.46)	0-8
Going to a hospital for treatment	1.34 (2.01)	0-8
Talking about illness	1.03 (1.65)	0-8
Reading about illness	0.49 (1.21)	0-7
Visiting a hospital for other reasons	1.26 (2.15)	0-8
Watching TV programs about illness	1.11 (2.01)	0-8
Listening to radio programs about illness	1.26 (2.16)	0-8
Thinking about illness	1.89 (2.34)	0-8

From Table 3, range of scale for avoidance behaviors in particular situations due to fear or other unpleasant feelings is between 0-8. The mean scale of avoidance in consulting family doctor (1.34), visiting a friend in hospital (0.50), visiting a relative in hospital (0.55), going to hospital for treatment (1.34), talking about illness (1.03), reading about illness (0.49), visiting a hospital for other reasons (1.26), watching TV programs about illness (1.11), listening to radio programs about illness (1.26) and thinking about illness

(1.89) shows that participants slightly avoid those situations.

Table 4. Reassurance seeking about health conditions.

Reassurance item	Mean (SD)	Minimum-Maximum
Friends	3.11 (2.21)	0-8
Family	3.85 (2.54)	0-8
Reading books	3.77 (2.22)	0-8
Checking body for changes	4.36 (2.20)	0-8
Family doctor	3.27 (2.50)	0-8
Nurses	1.63 (2.06)	0-8
Hospital outpatient clinic	2.68 (2.46)	0-8
Hospital casualty	2.09 (2.35)	0-8
Other	0.54 (1.50)	0-8

From table 4, range of scale for reassurance seeking about health conditions is between 0-8. The mean score for reassurance seeking from nurses (1.63), hospital outpatient clinic (2.68) and hospital casualty (2.09) shows that participants rarely seek reassurance from them. The mean score for reassurance seeking from family (3.85), from friends (3.11), family doctor (3.27), reading books (3.77) and checking body for changes (4.36) shows that participants sometimes seek reassurance from them.

Table 5. Association between age, gender, ethnicity, nationality, current posting, smoking, alcohol, drugs and hypochondriasis.

Independent Variables	Hypochondriasis		OR (95% CI)	Chi-square	P value
	Present n (%)	Absent n (%)			
Gender					
Male	24 (33.80%)	47 (66.20%)	1 (reference)		
Female	43 (39.45%)	66 (60.55%)	1.276 (0.684-2.381)	0.587	0.444
Ethnicity				0.008	0.929
Chinese	13 (33.33%)	26 (66.67%)	1.045 (0.393-2.784)		
Indian	29 (45.31%)	35 (54.69%)	1.733 (0.725-4.139)	1.544	0.214
Malay	11 (32.35%)	23 (67.65%)	1 (reference)		
Others	14 (32.56%)	29 (67.44%)	1.009 (0.386-2.638)	0.0004	0.985
Religion					
Buddhism	14 (30.43%)	31 (69.57%)	0.602 (0.226-1.603)	1.039	0.308
Christian	12 (42.86%)	16 (57.14%)	1 (reference)		
Hinduism	24 (42.86%)	32 (57.14%)	1.000 (0.400-2.502)	0.000	1.000
Islam	13 (33.33%)	26 (66.67%)	0.667 (0.245-1.815)	0.632	0.427
Others	4 (36.36%)	7 (63.64%)	0.762 (0.181-3.21)	0.138	0.711
Nationality					
Malaysia	53 (37.59%)	88 (62.41%)	1.08 (0.51-2.25)	0.037	0.85
International	14 (35.90%)	25 (64.10%)	1 (reference)		
Current Posting					
Community Medicine	13 (36.11%)	23 (63.89%)	1 (reference)		
Medicine	13 (41.94%)	18 (58.06%)	1.278 (0.477-3.424)	0.238	0.626
Obstetrics and Gynecology	10 (30.30%)	23 (69.70%)	0.769 (0.281-2.105)	0.261	0.609
Orthopedics	9 (39.13%)	14 (60.87%)	1.137 (0.387-3.345)	0.055	0.815
Pediatrics	9 (33.33%)	18 (66.67%)	0.885 (0.310-2.528)	0.052	0.819
Surgery	13 (43.33%)	17 (56.67%)	1.353 (0.502-3.648)	0.358	0.550
Smoking					
Yes	6 (75.00%)	2 (25.00%)	5.459 (1.069-27.877)	5.113	0.024
No	61 (35.47%)	111 (64.53%)	1 (reference)		
Alcohol					
Yes	1 (33.33%)	2 (66.67%)	0.841 (0.075-9.454)	0.020	0.888
No	66 (37.29%)	111 (62.71%)	1 (reference)		
Drugs					
Yes	0 (0.0%)	0 (0.0%)			
No	67 (37.22%)	113 (62.78%)			

Table 5 showed the association between the sociodemographic data and hypochondriasis by using chi-square test, with a significance level of 0.05. It shows that 33.8% of males and 39.45% of females in the sample group suffers from hypochondriasis. Females are 1.276 times more likely to have hypochondriasis than males with a 95% confidence interval of 0.684-2.381. The chi squared value was 0.587 (<3.841) and the P value was 0.444 (>0.05) which leads us to accept the null hypothesis that there is no significant difference in the incidence of hypochondriasis between males and females.

It was found that 33.33% of Chinese, 45.31% of Indian, 32.25% of Malay and 32.56% of people of other ethnicities suffered from hypochondriasis according to the HAI (short week questionnaire). The reference group used in this case was Malay, and odds ratio was calculated to find that the Chinese sample was 1.045 times more likely than the Malay sample with a 95% confidence interval of 0.393-2.784. The Indian sample was 1.733 times more likely to have hypochondriasis in comparison to Malays with a 95% confidence interval of 0.725-4.139. People of other ethnicities were found to be 1.009 times more likely to suffer from hypochondriasis than the Malays with a confidence interval of 0.386 to 2.638. Chi square value was calculated

and was as follows Chinese-0.008, Indian-1.544, and other ethnicities- 0.0004. P value was 0.929 for the Chinese population, 0.214 for the Indian population and 0.985 for people of other ethnicities. Therefore, we must accept the null hypothesis that ethnicity does not play a role in the incidence of hypochondriasis in medical students.

Hypochondriasis was present in 30.43% of Buddhism, 42.86% of Christians and Hinduism, 33.33% of Muslim and 36.36% of people of other religions. The reference group used for religion was Christian and it was found that Buddhists were 0.602 times less likely (95% confidence interval of 0.226-1.603), Muslims were 0.667 times less likely (95% confidence interval of 0.245-1.815) and people of other ethnicities were 0.762 times less likely (with a confidence interval of 0.281-3.21) to have hypochondriasis than Christians. Hindus had an odds ratio of 1 which means they are just as likely as Christians to develop hypochondriasis (95% confidence interval of 0.400-2.502). Chi squared values calculated were 1.039 for Buddhists, 0 for Hindus, 0.632 for Muslims and 0.138 for people of other ethnicities. P value was 0.308 for Buddhists, 1 for Hindus, 0.427 for Muslims and 0.711 for people of other ethnicities. Therefore, we must accept the null hypothesis that religion does not play a role in the development of hypochondriasis in medical students.

Hypochondriasis was present in 37.59% of Malaysian students and 35.9% of international students. Odds ratio calculated was 1.08 with a 95% confidence interval of 0.51-2.25, this means that Malaysian students are 1.08 times more likely to suffer from hypochondriasis in comparison to international students. Chi square value was calculated and was found to be 0.037 (<3.841). P value was 0.85 (>0.05). Therefore, we must accept the null hypothesis that nationality has no effect on the incidence of hypochondriasis on medical students.

36.11% of students posted in community medicine, 41.94% of students in medicine, 30.30% of students in obstetrics and gynecology, 39.13% of students in orthopedics, 33.33% of students in pediatrics and 43.33% of students in surgery were found to have hypochondriasis. Odds ratio, P value and chi squared value was calculated and the reference group used was Community Medicine. In comparison to community medicine, in was found that students in Medicine posting were 1.278 times more likely (with a 95% confidence interval of 0.477-3.424), orthopedics was 1.137 times more likely (95% confidence interval was 0.387-3.345) and surgery was 1.353 times more likely (95% confidence interval was 0.502-3.648) to have hypochondriasis. Students in obstetrics and gynecology were 0.769 times less likely (with a 95% confidence interval of 0.281-2.105) and students in pediatrics were 0.885 times less likely (with a 95% confidence interval of 0.310-2.528) to have hypochondriasis when compared with students in community medicine. The chi squared values obtained are as follows, medicine-0.238, obstetrics and gynecology- 0.261, orthopedics-0.055, pediatrics-0.052 and surgery-0.358 (all <3.841). The p value was 0.626 for medicine, 0.609 for obstetrics and gynecology, 0.815 for orthopedics, 0.819 for pediatrics and 0.550 for surgery (all >0.05). These values indicate that the null hypothesis that current posting has no effect on the incidence of hypochondriasis must be accepted.

75% of smokers suffered from hypochondriasis. Odds ratio was calculated and it was found that smokers are 5.459 times more likely to suffer from hypochondriasis with a 95% confidence interval of 1.069-27.877. Chi squared value obtained was 5.113 (>3.841) and P value was 0.024 (<0.05). Therefore, null hypothesis is rejected. There is significant effect of smoking on the incidence of hypochondriasis in medical students.

33.33% of alcoholics suffered from hypochondriasis, odds ratio was 0.841 which indicated that smokers are 0.841 times less likely. To suffer from hypochondriasis with a 95% confidence interval of 0.075-9.454. chi squared value was 0.02 and p value was 0.888. This concludes that null hypothesis must be accepted that alcohol addiction has no effect on the incidence of hypochondriasis in medical students.

4. Discussion

This cross-sectional study was done to instill awareness onto medical students about hypochondriacal disorder, determine the factors associated with fear of diseases amongst medical students of a private medical college in Malaysia.

Using the short health anxiety inventory (SHAI), we found that 37.22% of students are suffering from hypochondriasis. As defined by the Improving Access to Psychological Therapies Data Handbook, a cutoff score of 18 or more on the SHAI main section indicates the presence of significant hypochondriacal concerns and health related anxiety among the study participants. [30] The average score of students based on the SHAI is 15.69 with the range of 2-43 in our study. A study done by Mohammad Faizan Zahid in Pakistan showed that 11.9% (61) of medical students with sample size of 513 fits the criteria of having hypochondriasis.[29] A study by Hunter, Lohrenz and Schwartzman conducted in Tel-Aviv Medical School, Israel ascertained that 70% of the medical student population suffered from health anxiety.[2] A similar study done by Woods, Natterson and Silverman delineate that 78.8% of medical students experienced significant health-related anxiety.[11] Other groups outlined parallel observations which reinforce the apprehension that

students of the medical field are credible to health-related anxiety due to the nature of their medical curriculum.[31-33]

Another perspective to investigate the presence of hypochondriasis is by exploring the cognitive and distress component, which was unparalleled until it was initiated by Moss-Morris and Petrie in 2011 and used by Azuri J in his hypochondriasis study at Tel-Aviv Medical School, Israel.[35],[31] These two components helps present extra methods of studying hypochondriasis and may provide further cognizance on ways to handle it. Azuri J's studies showed that students entering clinical years have increasing trends of cognitive component to health anxiety however it contradicts with the findings of Moss-Morris and Petrie's study.

In our study, we found that the avoidance behaviors of medical students in particular situations showed slight avoidance in terms of consulting doctors, visiting friend or relatives in hospital, getting treatments at hospital, talking or reading about illness, visiting hospital for other reasons, watching TV programs or radio programs about illness and also thinking about illness. However as for reassurance seeking behavior about health conditions, medical students sometimes seek reassurance from friends, family, reading books, checks body for changes and family doctors. They rarely get reassurance from nurses, outpatient clinic and hospital casualty units. Waterman and Weinman study on avoidance and reassurance seeking behavior of medical students showed no evidence that medical students are more hypochondriac compared to non-medical students. The reason for this contradictory result is said to be the large variations of research methodology, use of different psychometric scales and different medical curricula or different medical postings.[34]

This study has showed that the segment of students who divulge themselves to have addictions correspond to significant hypochondriacal perturbation compared to those without any addictions. In spite of the fact that only a small proportion of students of the population admitted to having addictions, they showed a significantly higher mean score on the SHAI. The main subgroup of addiction consists of smoking as a major significance. Among the 8 smokers in our study, 6 (75%) of them are suffering from hypochondriasis. Cigarette smoking is known to be a factor that proliferates the appearance of anxiety symptoms and anxiety disorder. [36]

A study previously conducted in Pakistan also designate that medical students that have addictions are 2.66 times more likely to experience anxiety and depressive symptoms.[37] A cohort study conducted on the general population also showed the increased emergence of anxiety and depression among cigarette smokers.[38],[39] A study done by Goodwin RD, Patton GC and Johnson JG enrapt mainly on the unfolding of anxiety disorders such as agoraphobia, generalized anxiety disorder, and panic disorder on adolescent and young adults that is addicted to cigarette smoking.[40-42]

Moreover, we found that there is no significant association between gender, ethnicity, religion, nationality, current posting and hypochondriasis. A study done by Creed, F. & Barsky stated that hypochondriasis, in contrast to other somatoform disorders, does not show any gender bias. [45] Apart from that, based on a study done by A. J. Barsky, although female hypochondriasis outnumbered their male counterparts in this study, the ratio did not differ significantly from that of the clinic population as a whole. [26] In another study done by Escobar. J, no significant difference is found across gender and ethnicity. Mexicans are found to have higher prevalence of hypochondriasis compared to other ethnicities such as Central Americans and US-born whites. [46]

This study achieved a number of improvements upon its predecessors. The response rate of our study was 78.2% with 180 responses out of the total 230 questionnaire distributed. Limitations of this study was exhibited, in which health concerns of medical students that did not result in consultation, not being able to fully comprehend the perception experience, appraisal and decisions to seek medical advice were not considered. Since it is measured at a single point of time, temporal relationship of hypochondriasis among medical students cannot be established. Moreover, the sample size was only taken from medical students from one private medical college, thus this study cannot represent the prevalence of hypochondriasis in other medical colleges in Malaysia. This study only includes year 4 medical students which are currently in clinical postings thus it cannot represent all medical students especially those in pre-clinical years.

It is significant to raise awareness among medical students and clinicians about this phenomenon. Curriculum of undergraduate medicine can incorporate educational sessions to counteract such fears and ideas. Discussion on reducing stress among medical students can be made to elevate their coping mechanisms. At the same time medical resources can be conserved rather than being sought for reassurance by students who suffer from hypochondriasis. [29] Previous literature has evidenced that there is a strong correlation between addictions and health related anxiety or anxiety symptoms and disorders. Thus [43] [44] there should be a considerable management to combat such kind of issues. Future studies are required to find out the incidence of hypochondriasis among general practitioners, medical

assistants, physicians and other health professionals. Different scales, such as Whitley's index or Health Anxiety Questionnaire can also be used together to improve the sensitivity and specificity of the study.

5. Conclusion

Our study shows that quite a number of medical students in our college are having hypochondriasis. There was significant association of smoking and hypochondriasis with smoker has higher incidence of hypochondriasis compared to non-smoker. However, there was no association between hypochondriasis and other risk factors such as gender, ethnicity, religion, nationality, current posting and alcohol consumption. In addition to that, those who suffer from hypochondriasis will tend to seek assurance primarily from observing body changes, followed by reading books and consulting family doctors. Minority of medical students, interestingly, also avoid doing certain things because of fear and unpleasant feelings. They tend to avoid thinking about illness, consulting doctors and visiting hospital. However, further research is required in order to better evaluate the association between smoking and hypochondriasis as well as the items medical students avoid or seek out for assurance.

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