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# Nosophobia And Self-Efficacy For Exercise Among Students Of Science During Pandemic

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## ABSTRACT

Nosophobia is an overwhelming anxiety about getting any disease has amplified to a greater extent during the pandemic. People are increasingly becoming germophobes and are startled by the slightest amount of threat to their health. Then again, we have another set of people who are completely not frightened by corona virus. Even though ignorance might be an easy, go-to reason for such mentalities, we can witness certain people who are extremely confident about their health and fitness, mostly tend to fall on the 'not afraid of corona or any other disease' spectrum. This study aims to compare the illness attitude and self-efficacy for exercise among students of psychology and non-psychology streams.

**Objectives:** To identify and draw comparison between psychology and non-psychology students on their illness attitude and self-efficacy for exercise.

**Methods:** Sample 1 and 2which consists of students who pursue psychology and non-psychology majors, respectively, was chosen for this study. Both male and female participants were included in the sample. Data collection through the following questionnaires: Illness Attitude Scale by Robert Kellner in 1987 and Self-Efficacy for Exercise (SEE) Scale by Resnick& Jenkins in 2000. Purposive sampling technique will be adopted.

**Results:** Independent sample t test results revealed that there is a significant difference in the mean of two groups, in their illness attitude at the significant level $p < 0.01$ while the self-efficacy for exercise doesn't show significant difference between the two groups.

**Conclusion:** There is a significant difference in illness attitude among students of science and Presence of nosophobia was found among psychology students.

**Keywords:** Nosophobia, illness attitude, hypochondriasis, self-efficacy.

## INTRODUCTION

Nosophobia or 'fear of diseases', which is an overwhelming anxiety about getting any disease, has amplified to a greater extent during the pandemic. People are increasingly becoming germophobes and are startled by the slightest amount of threat to their health. Then again, we have another set of people who are completely not frightened by the corona virus. Even though ignorance might be an easy, go-to reason for such mentalities, we can witness certain people who are extremely confident about their health and fitness, mostly tend to fall on the 'not afraid of corona' (or any disease) spectrum.

### Origin and meaning of nosophobia

Nosophobia orNosemaphobia is a term derived from Greek, where 'nosos' means disease and 'phobos' means fear. The term itself is self-explanatory and it means, irrational fear of getting a serious disease (Milosevic & McCabe, 2015). It is simply called as 'disease phobia'. It is very common among medical students and researchers who often spend time studying about the diseases and disorders and

might fear they will have those that they've studied and thus its also sometimes called as 'medical students' disease' (Fritscher, 2020). The very common reasons for nosophobia may be due to traumatic past of serious health issue, or being constantly acquainted with those who have serious illness, or even may be due to exposure to the media that highly covers about diseases and risks to one's health and overall wellbeing. This phobia has not been included in the Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5) but it is very much related to hypochondriasis, which is now called as Illness Anxiety Disorder (IAD) according to DSM-5.

Hypochondriasis on the other hand is a preoccupation of fear of having a serious illness and it majorly involves the individual devoting time and money towards taking tests for diagnosing an illness that they perceive to have but in reality, it might not be the case (Stewart & Watt, 2000). Unlike the regular or panic-induced check-ups that people do normally to ensure they do not have a serious illness, people with hypochondriasis undergo medical procedures and test just to make sure that they have the perceived serious illness. All these measures that they take is to confirm their belief of having a serious issue. This results in spending increased costs to health care systems. The fear of having a disease persists even in the absence of medical evidence. Individuals even get disappointed when they do not have any physical symptom to confirm to their belief of having a serious illness (Butcher et al., 2014).

## Nosophobia versus hypochondria

As much as nosophobia is related to hypochondriasis, there are several minute differences that separate them as two distinct variables to be studied. One such difference is their specificity. While nosophobia is a fear of getting a specific life-threatening disease, hypochondriasis (or illness anxiety disorder) is a fear of getting any illness, not just a life-threatening, chronic disease (Raypole, 2019). For example, individual with illness anxiety disorder having common cold might fear they would have the novel corona virus (SARS-CoV-2) but those with nosophobia will fear having (or going to have) the corona virus without any physical symptom to support or confirm their belief for the same.

Another difference that draws a line in behaviours of people having those disorders is that, people with illness anxiety disorder will reach out to health care professionals and their family and friends for reassurance while those with nosophobia tend to avoid conversations of their fear about a serious illness (Raypole, 2019).

## Risk factors and symptoms

People with obsessive compulsive disorder (OCD) are at higher risk of getting nosophobia. Other factors like having had a serious illness during childhood, or having family history of a serious illness, witnessing someone close to them suffering from a life-threatening disease, losing a loved one to a serious illness, and other genetic and hereditary factors of anxiety in the familial gene are major risk factors of having nosophobia. Symptoms commonly include, dizziness, nausea, trouble in staying or falling asleep, sweating, heart palpitations, avoiding places that they feel cause a disease, constantly search about symptoms of the illness, obsessing and feeling uneasy over normal body functioning, etc ("Nosophobia", n.d). They are similar to that of general anxiety disorder. Cognitive behavior therapy (CBT), exposure therapy, hypnotherapy, medications like anxiolytics (anti-anxiety drugs – benzodiazepines and beta blockers) and anti-depressants are used for treatment of nosophobia (Raypole, 2019).

## Exercise and confidence

Individuals who have better confidence in their exercise routine and their body as such, tend to be surer of not being susceptible to any serious illness. People on average believe that mind and body goes hand in hand and that with a good physique there will be less to worry, thus, those who have good confidence in their exercise may not have an elevated fear of getting an illness. But exercise alone doesn't sum up for such attitude. If a person exercises more but still holds lower confidence on his body, then they may be susceptible to fall under the case of nosophobia. Only when they have both confidence and their exercise routine on a higher scale, will they be able to rid any fear of illnesses.

## Illness Attitude

Attitude is defined as "a complex of feelings, desires, fears, convictions, prejudices or other tendencies that have given a set or readiness to act to a person because of varied experiences" (Chave, 1928).

Illness attitude is defined as "the belief that one is threatened by illness and in need of a protective action" (Leventhal, 2001) and illness behaviors are simply the actions undertaken to compensate the attitude formed because of the perceived or present illness and protect oneself from an underlying threat or disease. While attitude is a covert tendency, behavior is an overt action. Illness behavior stems out from illness attitude.

### Self-efficacy

We all possess some amount of confidence in ourselves. That confidence is called as self-efficacy. It is defined by Akhtar as, "the optimistic self-belief in our competence or chances of successfully accomplishing a task and producing a favourable outcome" (Akhtar, 2008). This study focuses on self-efficacy for exercise which is nothing but one's confidence in doing exercises on a regular schedule.

### Need for the study

Having understood the variables of the study, it is highly required to examine the level of fear people hold regarding any perceived illness, especially during this COVID-19 pandemic. There is a widespread idea that people who have better exercise schedule and better confidence in themselves and their bodycomparatively tend to be resistant to fear of any illness whatsoever unlike those who lack such self-efficacy. Thus, this study focuses on comparing illness attitude (to check presence/level of nosophobia) and self-efficacy for exercise among two groups, psychology and non-psychology students. Students of science, especially psychology majors are target samples here because they read about diseases and disorders regularly which has greater chance in eliciting nosophobia in them. Previously done studies did not take into account these two variables and have not compared them between the said sample groups; and also, none were established based on Indian context.

## REVIEW OF LITERATURE

### Studies on illness attitude and self-efficacy:

Abou-Shouk et al. (2022) did a study aims to examine individuals' perceptions of travel anxiety and fear of COVID-19, the procedures for protection taken by both UAE and Egypt to maintain tourists' safety and also studied on how these perceptions affected the travel intentions. Convenient sampling adopted and structural equation modelling was employed for statistical analysis. Results reveal that the travel intentions varies according to belief by individuals in the protection measures across the UAE and Egypt.

Pappalardo et al. (2022) did a cohort study on self-efficacy among caregivers (N=365) of children with food allergy. Bivariate and multivariate analyses found relationships between study variables. Results showed that higher self-efficacy led to better QoL and lower perceptions of risk of food allergy, irrespective of sociodemographic factors.

Okoi& Etim(2021) did a cross-sectional descriptive survey that examined the prevalence of nosophobia, hypochondriasis, and readiness of people (N=200; random sampling) to seek healthcare during the COVID-19 pandemic in Nigeria. Results of 182participants presented with nosophobia and hypochondriasis, showed that it was slightly more in womenthanin men. 157 participants showed low willingness to seek healthcare. In conclusions, nosophobia and hypochondriasis were found to have an association with age and healthcare seeking behaviour.

LeBovidge et al. (2005) did a study on youths (N=75) aged 8–18 years, with chronic arthritis, who were administered with a semi-structured interview evaluating illness-related and nonillness-related stressors in important life domains. Measures of attitude toward illness, depressive and anxiety symptoms were also completed by children and their psychosocial adjustment measurement was completed by parents. Results showed that more positive attitude toward illness was associated with lower levels of depressive and anxiety symptoms.

Räty et al. (2004) studied the relationship betweengeneral self-concept,

illness severity, illness-specific attitude, and sociodemographic factors in adolescents (N=149) with epilepsy in Sweden. Results showed illness severity was significantly related to theirattitude towards illness and their self-concept. In conclusion, adolescents' general self-concept and illness-specific attitudewas related to theseverity of the epilepsy condition.

## METHODS

### Statement of Problem

The problem statement here is to find out whether there is any difference between psychology and non-psychology students in their illness attitude and self-efficacy for exercise.

### Research question

Is there a difference between psychology and non-psychology students in their illness attitude and self-efficacy for exercise?

### Objectives

1. To identify the illness attitude and self-efficacy for exercise among students of psychology
2. To identify the illness attitude and self-efficacy for exercise among students of psychology
3. To compare psychology and non-psychology students in their illness attitude and self-efficacy for exercise.

### Hypothesis

$H_{01}$: There is no significant difference between psychology and non-psychology students in their illness attitude

$H_{02}$: There is no significant difference between psychology and non-psychology students in their self-efficacy for exercise

### Operational definition

#### Illness attitude

Illness attitude is defined as "the belief that one is threatened by illness and in need of a protective action" (Leventhal, 2001). Presence of nosophobia will be identified through the participants' score obtained through the Illness Attitude Scale.

In this study, illness attitude is operationally defined as the scores obtained by the participants in the Illness Attitude Scale developed by Robert Kellner in 1987.

#### Self-efficacy for exercise

Akhtar defines self-efficacy as, "the optimistic self-belief in our competence or chances of successfully accomplishing a task and producing a favourable outcome" (Akhtar, 2008). Self-efficacy for exercise is simply one's confidence in doing exercises on a regular schedule.

In this study, self-efficacy for exercise is operationally defined as the scores obtained by the participants in the Self-Efficacy for Exercise (SEE) Scale developed byResnick& Jenkins in 2000.

### Research design

Ex post facto research design

### Variables

Indepedent variable = Field of study (psychology and non-psychology)

Dependent variables = Illness attitude and self-efficacy for exercise

### Sample (N=80)

Sample size of study is 80 (N=80). There are two sample groups.Sample 1 is students who pursue psychology (N=40) and sample 2 is students of non-psychology majors (N=40).

### Sampling technique

Purposive sampling technique was adopted

### Inclusion criteria

- Male and female UG and PGstudents of psychology from Chennai
- Male and female UG and PGstudents of psychology from Chennai

### Exclusion criteria

- Students of science who pursue distance education.
- Students of science majors who were unable to read or access the online questionnaire.

### Tools used

Illness Attitude Scale by Robert Kellner in 1987 and Self-Efficacy for Exercise (SEE) Scale byResnick& Jenkins in 2000.

### Description of tools

#### 1. Illness Attitude Scale (IAS)

Illness Attitude Scale (IAS) was developed by Robert Kellner in 1987. It is a 27-item self-report instrument with a rating scale format of 5-point Likert-type, starting from 0 (no) to 4 (most of the time). It is designed to measure fears, attitudes and beliefs associated with hypochondriasis and abnormal illness behavior and has 9 subscales with 3 questions each, namely:

1. Worry about illness (items 1–3)
2. Concerns about pain (items 4–6)
3. Health habits (items 7–9)
4. Hypochondriacal beliefs (items 10–12)
5. Thanatophobia (items 13–15)
6. Disease phobia (items 16–18)
7. Bodily preoccupations (items 19–21)
8. Treatment experience (items 22–24)
9. Effects of symptoms (items 25–27)

Reliability: The scale showed good test-retest reliability (alpha values were found to be 0.82 and 0.85).

Validity: The questionnaire has good concurrent validity for all its nine subscales.

#### 2. Self-Efficacy for Exercise Scale (SEE)

The Self-Efficacy for Exercise scale (SEE) was developed by Resnick and Jenkins in 2000. It is a self-report instrument consisting of 9 questions that measured one's confidence in exercise and their self-efficacy as such for the same. The rating scale was a linear scale in the form of 0 to 10 ranging from responses 'not confident' (zero) to 'very confident' (ten).

Reliability: Internal consistency of the scale was 0.92 which shows the scale has good reliability.

Validity: Short form Survey (SF-12) had mental and physical health scores which predicted efficacy expectorations that was measured by Self-Efficacy for Exercise (SEE) scale. Also, efficacy expectations of SEE predicted exercise which shows the scale has good predictive validity.

### Administration

The data was collected through the questionnaires mentioned above – Illness Attitude Scale by Robert Kellner in 1987 and Self-Efficacy for Exercise (SEE) Scale byResnick& Jenkins in 2000. The questionnaires were sent online to the participants via google forms.

### Ethics

Ethical guidelines were followed. Sample groups were given a choice to whether participate or not. Considering sensitivity of the topic, anonymity was maintained and confidentiality was assured.

### Statistical techniques used

The statical technique used wasindependent sample t-test (using SPSS version 28.0)

## RESULTS AND DISCUSSION

### Descriptive statistics

Mean & Standard Deviation

### Inferential statistics

Independent sample t-test

**TABLE 1 Descriptive statistics**

| Variables | N | Minimum | Maximum | Mean | SD |
|---|---|---|---|---|---|
| **Psychology** | 40 | | | | |
| Illness attitude | | 13 | 86 | 44.17 | 17.35 |
| Self-efficacy for exercise | | 13 | 60 | 51.52 | 16.45 |
| **Non-psychology** | 40 | | | | |
| Illness attitude | | 2 | 5 | 33.65 | 16.83 |
| Self-efficacy for exercise | | 79 | 79 | 54.25 | 16.43 |

Table 1 represents the Descriptive Statistics, i.e., the mean and the standard deviation of scores from Illness Attitude Scale and Self-efficacy for Exercise Scale among two samples.

**TABLE 2 Descriptive statistics**

| Variables | N | Mean | SD |
|---|---|---|---|
| **Psychology** | 40 | | |
| 1. Worry about illness | | 83.67 | 13.87 |
| 2. Concerns about pain | | 76.33 | 15.70 |
| 3. Health habits | | 101.33 | 23.80 |
| 4. Hypochondriacal beliefs | | 46.67 | 11.72 |
| 5. Thanatophobia | | 51.67 | 10.12 |
| 6. Disease phobia | | 44.67 | 4.04 |
| 7. Bodily preoccupations | | 70.33 | 12.58 |
| 8. Treatment experience | | 46.67 | 11.24 |
| 9. Effects of symptoms | | 67.67 | 4.04 |
| **Non-psychology** | 40 | | |
| 1. Worry about illness | | 68.33 | 19.73 |
| 2. Concerns about pain | | 65.33 | 12.06 |
| 3. Health habits | | 91.00 | 26.21 |
| 4. Hypochondriacal beliefs | | 42.67 | 13.05 |
| 5. Thanatophobia | | 39.33 | 17.21 |
| 6. Disease phobia | | 15.67 | 5.13 |
| 7. Bodily preoccupations | | 39.00 | 14.42 |
| 8. Treatment experience | | 39.00 | 13.23 |
| 9. Effects of symptoms | | 48.33 | 6.11 |

Table 2 represents the Descriptive Statistics, i.e., the mean and the standard deviation of scores from all 9factors of the Illness Attitude Scale among the two sample groups.

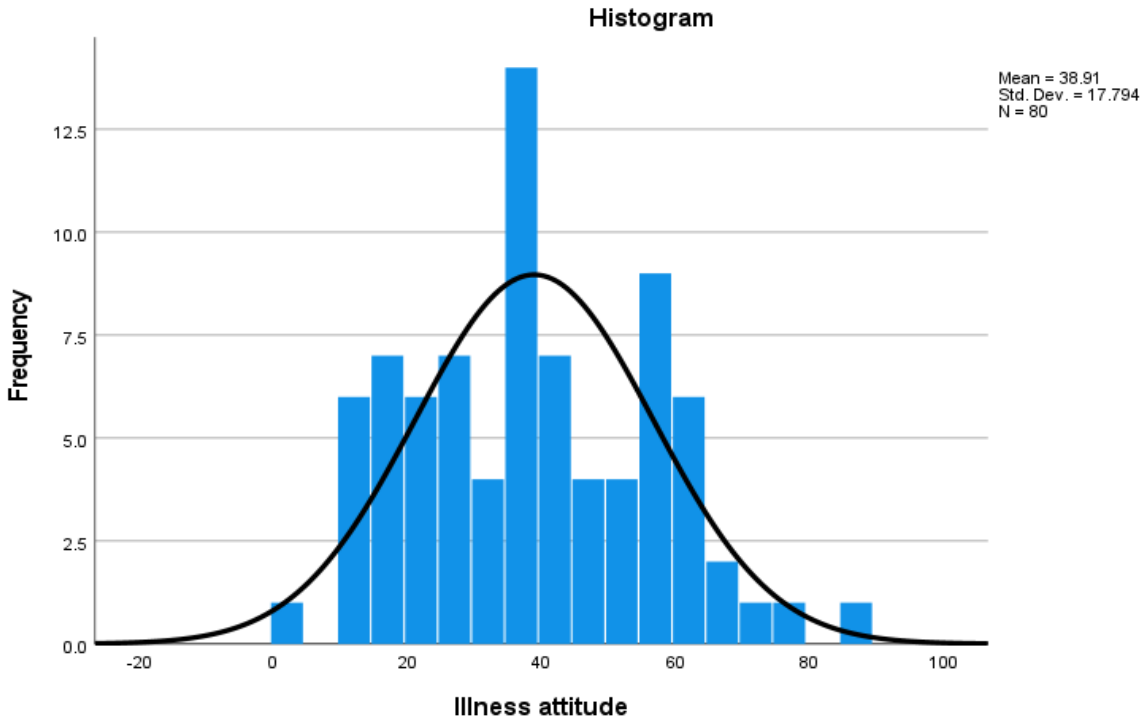


Fig.1 depicts the spread of scores in the Illness Attitude Scale (IAS)


Fig.2 depicts the spread of scores in the Self-efficacy for Exercise (SEE) Scale.

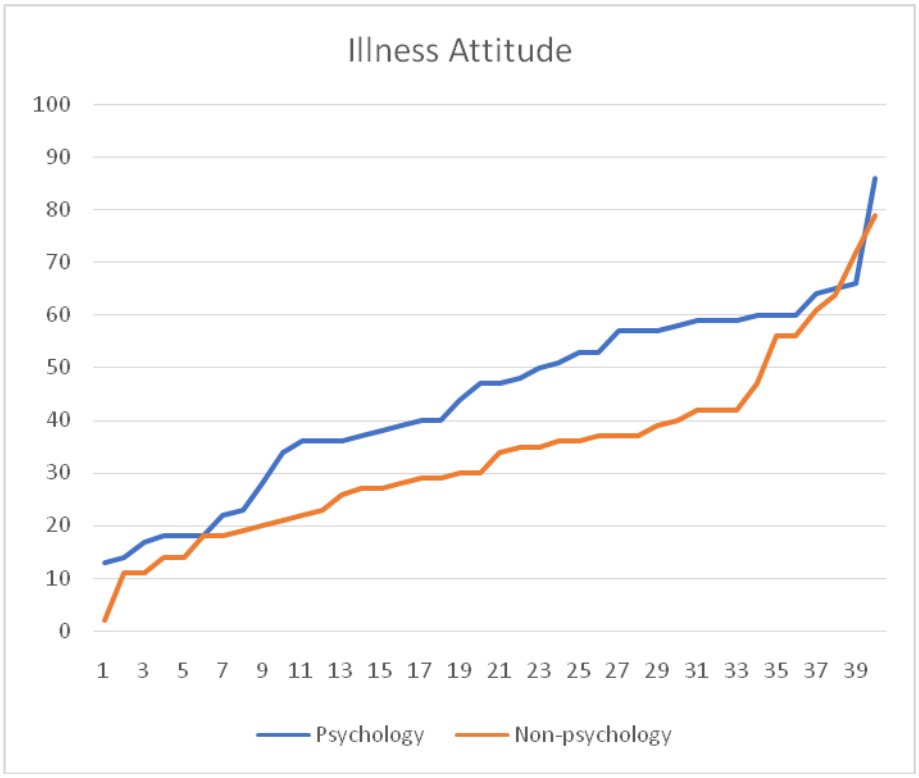


Fig.3 represents the scores on Illness Attitude Scale by psychology and non-psychology students

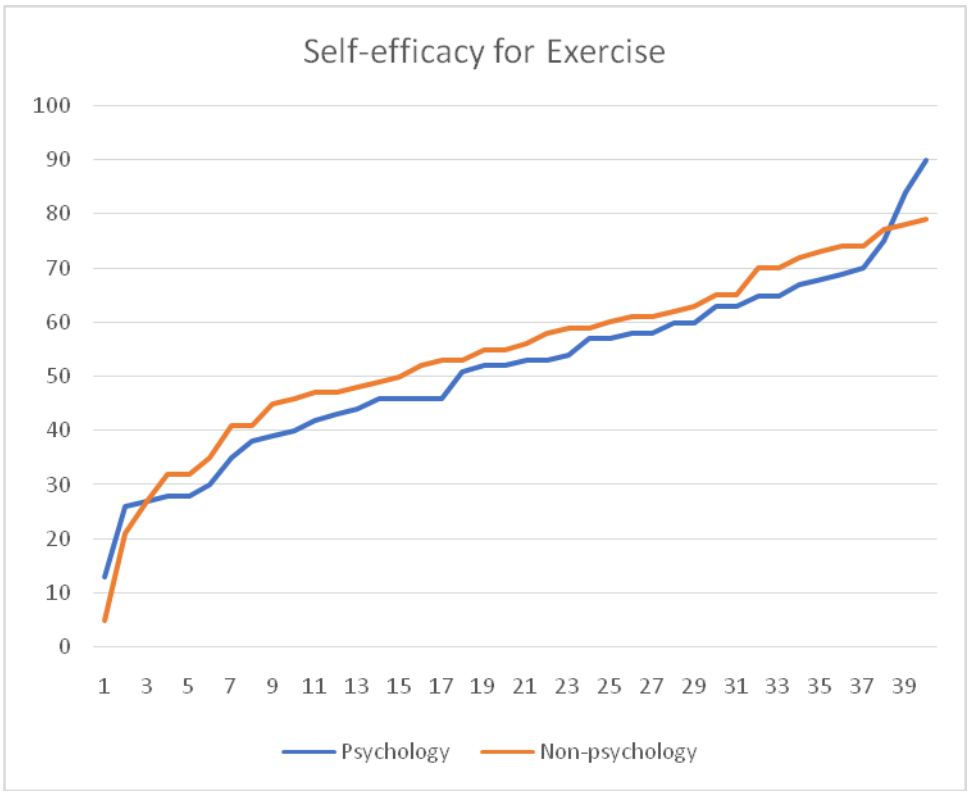


Fig.4 represents the scores on Self-efficacy for Exercise Scale by psychology and non-psychology students

**TABLE 3 Independent sample t test for the mean differences in Illness Attitude Scale and Self-efficacy for Exercise Scale among psychology and non-psychology students**

| Variables | Psychology | | Non-psychology | | t |
|---|---|---|---|---|---|
| | M | SD | M | SD | |
| Illness attitude | 44.17 | 17.35 | 33.65 | 16.83 | 2.75** |
| Self-efficacy for exercise | 51.52 | 16.45 | 54.25 | 16.43 | -0.74$^{NS}$ |

**= p<0.01, significant at the 0.01 level, two-tailed

NS – not significant

From tables 1 and 2 we can see that illness attitude was higher among psychology students and self-efficacy for exercise was higher among non-psychology students. The results of average from table 2 shows that, both samples have a higher mean in the factor "health habits" compared to other factors. While in that case too, the sample of psychology students had a greater average (almost 10-unitdifference) than the non-psychology sample. This may be due to the fact that psychology students are more prone to learning and prevention of diseases that increases their health habit more (e.g.: non-smoking behavior and non-addiction to alcohols). As seen from previous sections, illness behaviors are simply the actions undertaken to compensate the attitude formed because of the perceived or present illness and protect oneself from an underlying threat or disease. It stems from an illness attitude. And such illness behaviors that are maintained for a long period of time are called as illness habits(Leventhal, 2001). Such illness habits (here, categorized as 'health habits' based on factors of questionnaire)include non-smoking or non-alcohol consumption and these habits are reinforced due to fear of sickness and are maintained so as to resist oneself from getting any sort of an illness.

The factor "disease phobia"was the least scored among other factors by both the groups as such. But the difference of these factors among the two groups is drastic. Psychology students have more disease phobia than non-psychology students (around 30-unit difference). This maybe again because of so much exposure to diseases that would have had a priming effect on students of psychology than the non-psychology sample, for them to have a such an excessive fear of disease. With this evidence from the Illness Attitude Scale (IAS), we can see there is a presence of nosophobia among the sample of psychology students.

"Concern about pain" and worrying that it might've been caused by some serious illness and"hypochondriacal beliefs" regarding fear of any undiagnosed disease, was higher among psychology students. They even seem to question the validity of tests that are produced by medical professionals(Butcher et al., 2014). This may be because they have knowledge of diseases and they might refuse to take another experts' consultation and thus, show such an escalation of commitment to their beliefs and disease perception or their illness may also seem to be overwhelmingly difficult to diagnose and they may consider this as a disease out of proportion to all the diagnoses that a medical professional can make and thus, refrain from seeing them. The factor "treatment experience" where the frequency of visiting the doctors and other medical professionals is analysed and there seems to be not much of a difference between the two groups. Non-psychology group does not even perceive themselves to have a serious illness so the lower score might account for that. But the psychology sample too scored lower compared to other factors and this may be because they might have iatrophobia (fear of doctors or undergoing medical tests) or they might fear they will be diagnosed with some serious and chronic illness(Raypole, 2019)or maybe because they might feel themselves to be sufficient enough to diagnose (self-diagnosis) any illness due to their knowledge regarding the same.

"Thanatophobia", i.e., extreme fear of death or dying process was noteworthily higher in psychology students than non-psychology students (12-unit difference). "Worry about illnesses" also seemed to be higher in psychology students who scored 15 units more (approx.) than non-psychology students. They also seemed to have extreme "bodily preoccupations" where they keep worrying about sensations in body considering it to be related to some serious illness, ("Nosophobia", n.d) with a difference of about 31-unit difference compared to the non-psychology participants. The former also are highly conscious about "effects of symptoms"

The independent sample t test results reveal that there is a vast difference between the two groups on their illness attitude, with psychology students having higher illness attitude than the non-psychology students (around 10-unit difference). From the descriptive table too, it is evident that psychology students show a presence of nosophobia, and that it is higher compared to the non-psychology students' sample.This again proves the phrase that, 'nosophobia' is called as the "medical students' disease" (Fritscher, 2020). At the same time, there was no such noteworthy difference seen between the two groups in their self-efficacy for exercise. They only differ with a 3-unit difference in their averages. Such a minor

As quoted by Räty et al. in their study, the illness perception and its severity might also be related to their self-concepts just like how its related to their self-efficacy (Räty et al. 2004). Other factors, other than education, that might potentially create nosophobia may be fear or mistrust in medical field. Just like the psychology sample group in this study shows a significant lower score in visiting doctors while having high nosophobia, a study did by Abou-Shouk et al.also showed that people fearing that they are not being protected by measures of government had greater fear and anxiety of COVID-19 disease (Abou-Shouk et al. 2022). Thus, nosophobic people, here the psychology students, might also have had lesser belief in treatment and

## Findings of the study

There is a significant difference between illness attitude among the sample group but

to an extent where those perceptions of symptoms interfere with their regular working behaviors and also disrupts their concentration(Butcher et al., 2014). They show a 20-unit difference (approx.) in the factor effects of symptoms. This maybe because their work/job itself is with illnesses and diseases which leaves them no choice but to think and rethink about those concepts again and again for to have a firm hold on the subject. But on this process, they tend to have nosophobia. They may learn better coping learning skills to order and proper the thoughts and control those that may prove harmful to them in a long run.

difference cannot account for differentiating the two groups so it is safe to say that both psychology and non-psychology students have almost the same level of self-efficacy for exercise. Meanwhile, we cannot negate the illness attitude scores, and thus, even though having similar self-efficacy for exercise, the psychology students' sample had higher illness attitude (presence of nosophobia) than non-psychology students. The former also had significantly scored higher in all nine factors of the illness attitude scale compared to the latter and this again may be accounted for their extreme illness exposures as a part of their study pattern; assuming that it might've contributed to such high scores.

also may have lower trust on medical professionals which accentuates their phobia even more. It may become a continuous loop where they keep refraining from going to doctors or not having proper learning about illnesses and coping of illness anxiety, consequently, having increased level of nosophobia.

The results rejected null hypothesis 1 and showed that there is a significant difference between psychology and non-psychology students in their illness attitude. On the other hand, the results failed to reject the null hypothesis 2, thus, showing that there is no significant difference among psychology and non-psychology students in their self-efficacy for exercise.

there is no significant difference seen between self-efficacy for exercise among psychology and non-psychology students.

## Conclusions

- Psychology students had greater illness attitude compared to non-psychology (other science stream) students.
- Psychology students scored high on all 9 factors of Illness Attitude Scale compared to non-psychology students.
- There was no much difference in self-efficacy for exercise between the two sample groups, i.e., psychology and non-psychology students.

## Implications

Having understood the illness attitude and self-efficacy for exercise among students of science, it's important to psycho-educate them with regards to illness so that they can have reduced anxiety levels and better coping skills. Especially in the field of psychology its highly valid and important to have proper and sufficient knowledge, not to an extent of fearing about diseases, because this field of science is based on 'service' and its non-judegemntal. Since reaching out to people and help them modify their lifestyle is a crucial part of a psychologist, its essential that they don't get carried away in the process of helping. Also, having better self-efficacy (for exercise) will improve one's overall well-being.

## Limitations

- The study is based on self-reports, which has the risk of being biased with social desirability.
- Generalization of results is not possible because the study was limited to sample groups from one city and the sample size is relatively small.

### Suggestions for future study

- A pre-post study with an exercise intervention can be given to study its effect on results.
- The same study can be done between male and female groups to study the influence of gender.
- Addition of new constructs or variables can be done to make it as inter-disciplinary research so that it will have broader implications
- Largersample can be chosen for getting better generalizability.
- A wide range of geography can be chosen to generalize scores more efficiently.
- Probability sampling techniques can be used to get more accurate and unbiased results for the study.
- Can be administered in field setting by researcher themselves by not involving self-reports of participants to eradicate socially desirable responses
- Diverse localities, cultures and religions can be studied
- Further analysis like correlation, regression, etc. can be done to see how the variables affect one another

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