International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 1 Jan-Feb 2023, pp: 981-984 www.ijprajournal.com ISSN: 2249-7781

To Evaluate the Functional Exercise Capacity of Young Individuals in Health Care Profession: An Observational Study

Shaik Mohammad vasim akram

Submitted: 12-01-2023 Accepted: 24-01-2023

ABSTRACT

Background: Functional exercise capacity, it compares & evaluates the individual capacity, health status, body function and structures to perform work activities.

Aim: The study aims to evaluate the functional capacity of young individuals in health care profession.

Objectives: To evaluate the functional exercise capacity of young individuals in the health care profession, their inspiratory capacity through incentive Spirometry test and functional exercise capacity through six minutes walk test.

Methodology: Subjects who met the inclusion criteria were included in the study. The subjects were evaluated for inspiratory capacity using incentive Spirometry. After evaluating inspiratory capacity subjects were tested for 6 MWT distance walked were recorded.pre and post 6 MWT (HR,BP,SPO_2),Vitals of the subjects were recorded.

Outcomes: We have chosen different parameters such as Six minute walk distance, BMI, Pulse rate, Blood pressure,Spo2,Inspiratory capacity in the present study .

Conclusion: The study concluded that the functional capacity in young individuals in health care profession was moderate in both the females and males.

Key words: Functional capacity, Six minute walk, BMI, health care profession.

I. NEED OF THE STUDY

Standard healthcare outcome are done to evaluate fitness of individuals like normal vitals, respiratory system, cardiovascular system, opthomology, general systemic evaluation during admission into professional courses.

Overall physical fitness is not evaluated in routine medical examination except for the candidates appearing for defence services or defence sport.

Immunity of an individual depends on health fitness (components of physical, cardiovascular &muscular).The physiological parameters of respiratory system and cardiovascular system is checked, but the capacity of respiratory system, decreased cardiovascular system usually not screened.

The pandemic has thrown a light on the healthcare system to focus on the capacity of respiratory system and cardiovascular system.

Hence the study is proposed to evaluate the functional exercise capacity of young individuals in health care professional courses.

AIM OF THE STUDY

To evaluate the functional exercise capacity of young individuals in health care profession.

OBJECTIVE

To find out the Functional exercise capacity by recording the distance covered through six minutes walk test in young individuals in the health care profession.

To find out inspiratory capacity of young individuals in the health care profession through incentive Spirometry test.

METHODOLOGY AND MATERIALS

Study design : Observational study
Study setting : SVIMS, College of Physiotherapy.
Study duration : 4 months (April-August)
Sample size : 49

Formula:

$$\frac{(\text{Z}-\text{score})^2 \times \text{StdDev} \times (1-\text{StdDev})}{(\text{margin of error})2}$$

Sampling : Convenience sample

MATERIALS

BP apparatus
Pulse oximeter
Weighing machine
Stadiometer

CRITERIA

INCLUSION CRITERIA:

Age group between 18-26 years.
Both females and males
Health care professional students

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 1 Jan-Feb 2023, pp: 981-984 www.ijprajournal.com ISSN: 2249-7781

EXCLUSION CRITERIA
Below 18 years and above 26 years
Individuals with neurological disorders
Individuals with musculoskeletal disorders
Individuals who are not willing to participate
Study procedure:

Individuals who were willing and met the inclusion criteria were included in the study and an informed consent was obtained.

Anthropometric measurement were recorded for the individuals. In the first phase, the subjects were evaluated for inspiratory capacity in ml using incentive Spirometry. In the second phase, vitals (HR,BP,SPO_2) were recorded before subjects were asked to walk for.

All the vitals were recorded after the test. The procedure followed for 6 minute walk test is described as below.
Six minute walk distance:

The object of this test is to walk as far as possible for 6 minutes. The individual should walk back and forth in a 30m hallway. The individual is permitted to slow down, to stop, and to rest as necessary and may lean against the wall while resting, but resume walking as soon as he/she is able to.

Cones are placed at either end of the 30 meter stretch as turning point. The individual should be walking back and forth around the cones. Have chairs set up either side and halfway along the walking stretch.

The individual should pivot briskly around the cones and continue back the other way without hesitation.

If the individual stops at any time prior, the therapist can say: You can lean against the wall if you would like; then continue walking whenever you feel able.

Do not use other words of encouragement (or body language) to influence the individual's walking speed.

Accompany the participant along the walking course, but keep just behind them. Do not lead them.
Incentive Spirometry:

The individuals performed incentive Spirometry test as instructed**.** The maximal maneuvers were conducted, with one min break and, afterwards, one acceptable and reproducible maneuver were selected, in order to register the highest value.

OUTCOME MEASURES

To find out the Functional exercise capacity by recording the distance covered in meters through six minutes walk test in young individuals in healthcare profession.

To find out inspiratory capacity in millimeters using incentive Spirometry in young individuals in health care profession.

II. STATISTICAL ANALYSIS

Statistical analysis was done using the software SPSS 29.9 version for this purpose of data was entered into Microsoft excel spread sheet, tabulated and subjected to statistical analysis.
Descriptive data was expressed in mean standard deviation.
Paired t-test was used for analysis of pre test and post test within group.
A p-value $\leq$ 0.001is considered as significant. All the statistical analysis will be performed using statistical package for social sciences (SPSS).
49 individuals functional exercise capacity was evaluated. Out of 49; 21 were males and 28 were females.
The outcome variables of the study are Six minute walk test, Incentive Spirometry.

III. RESULT

Mean, ±SD, Demographic data and data of vitals recorded in vitals recorded in young individuals of health care professionals.

Parameters	**Mean**	**SD**
AGE	22.59	±2.07
BMI	22.43	±2.698
HR(Pre test)	81.245	±9.503
HR(Post test)	101.959	±12.033
SBP(Pre test)	110.061	±10.711
SBP(Post test)	117.224	±10.683
DBP(Pre test)	71.735	±7.788
DBP(Post test)	76.041	±7.853
SPO_2(Pre test)	98.776	±0.654
SPO_2(Post test)	98.714	±0.707

Table 1: The total number of individuals included in this study are 49; within the age limit of 18-26 years

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 1 Jan-Feb 2023, pp: 981-984 www.ijprajournal.com ISSN: 2249-7781

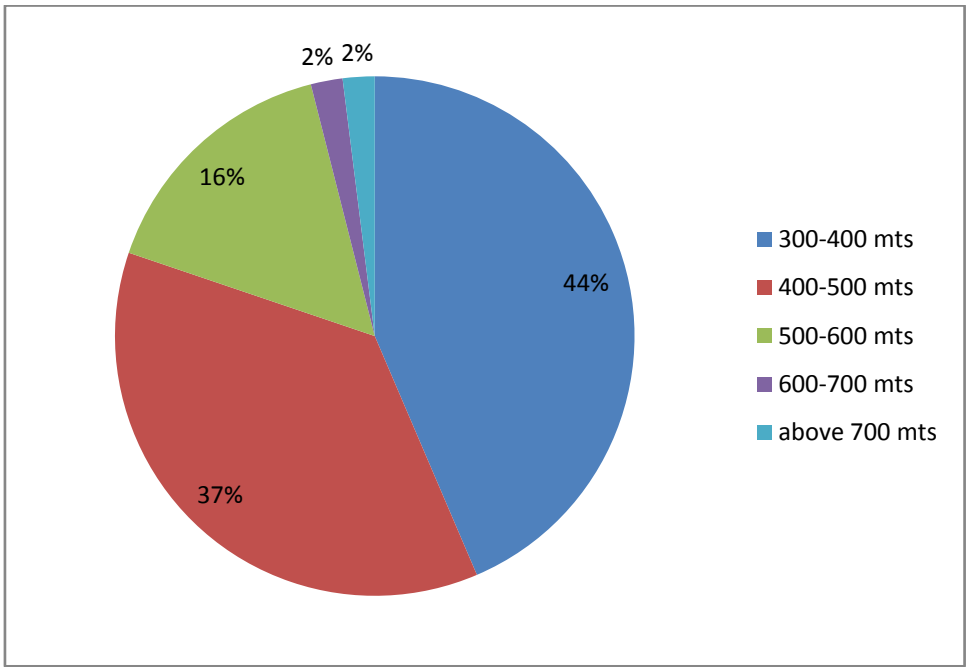
According to the descriptive statistics,

The mean value of age is 22.59 with the standard deviation of ±2.07. The mean value of BMI is 22.43 with the standard deviation of ±2.698.The mean value of the Heart rate during the pre and post test values are 81.245 and 101.959 bpm with a standard deviation of are ±9.503 and ±12.033.The pre and post mean values of the diastolic pressure in the individuals are 71.735 and 76.041 mmHg and the standard deviation are ±7.788 and ±7.85.The pre and post mean values of the systolic pressure in the subjects are 110.061 and 117.224 mmHg, the standard deviation are ±10.711 and ±10.683.The Pre and Post mean values of spo_2 are 98.714% and 98.776% and the standard deviation are ±0.654 and ±0.707.

Percentage values of distance covered in six minute walk test.

Distance covered	FREQUENCY	PERCENTAGE
300-400 meters	21	44%
400-500 meters	18	37%
500-600 meters	7	16%
600-700 meters	1	2%
Above 700 meters	1	2%

Table 2: This table represent the Frequency and percentage of the six minute walk distance covered by individuals.



Graphical representation of percentage of distance covered.

Parameters	N	Mean	SD	SE
INSPIRATION	49	1120.408 millimeters	±133.821	19.117

Table 3: Based on the results, the inspiration mean value and the SD are 1120.408 ml and ±133.821.

IV. DISCUSSION

The present study was to evaluate the functional exercise capacity of young individuals in health care profession.

According to the study, the functional exercise capacity was evaluated for the fitness of individuals in health care professions using six minute walk test and incentive Spirometry.

Six minute walk test is more reflective of the activities of daily living than the other walk test.

Chidozie E.Mbada et al. study provided reference values for the six minute walk distance in

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 1 Jan-Feb 2023, pp: 981-984 www.ijprajournal.com ISSN: 2249-7781

apparently healthy adults and 6MWT evoked significant cardiovascular response and exertion in apparently healthy adults(32).

Tsang et.al. concluded that the reference values for 6MWT and HGS in a healthy group of hongkong Chinese individuals (21 to 75 years) were statisfactory to high(34).

According to the results of the study followed by the guideline of ATS, 6MWT was performed, 600-700 mts was the highest distance covered,420-500 mts was the moderate distance covered and 300-420 mts was the lower distance covered.

Incentive Spirometry test was performed to evaluate the respiratory capacity.

V.F.Parreira stated that the recruitment pattern of respiratory muscles preferentially occurs with rib cage muscles during incentive spirometry using a flow-oriented device and a higher breathing work is observed during the use of flow-oriented device(33); Angela T chang et,al. study indicated that the inspiratory flow rate used during incentive Spirometry is the most significant factor determining the resultant breathing pattern(29).

According to the result of this study, the inspiratory capacity of the subjects was 1120 ml in acceptable range. It matches with the literature quoted

V. CONCLUSION

The study concluded that the alternative hypothesis is accepted and the null hypothesis is rejected and concluded that functional exercise capacity in young individuals in health care profession was moderate. The lower level of functional exercise capacity might hinder the physical functioning of health care professionals.