

A Survey to Evaluate the Impact of Ailurophobia on Blood Oxygen Level

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Abstract

The blood oxygen level is a measure of amount of oxygen circulation in the blood. The blood oxygen level test also known as 'blood gas analysis' estimates the proper working of the lungs and it performs different measurements. Pulse oximeter, a noninvasive device that helps to detect or estimate the level of carbon dioxide and oxygen saturation in the blood. Normal pulse oximeter reading has a range of 95 to 100 percent. 200 individuals were selected and asked about the fear of cats and their peripheral oxygen saturation was estimated using pulse oximeter device. The results calculated from M Stat software and student's *t*-test revealed that there is a significant impact of cat phobia on peripheral oxygen saturation. The calculated *p*-value was significant depicting the correlation between blood oxygen level and ailurophobia.

Keywords: Ailurophobia, Blood Oxygen Level, Pulse Oximeter

Introduction

The blood oxygen level is a measure of oxygen and carbon dioxide carried by the red blood cells and the amount of oxygen circulation in the blood [1]. The red blood cells carry oxygen from the lungs and deliver it in all parts of the body representing that how well body distributes oxygen in the cell. The blood oxygen level test also known as 'blood gas analysis' is used to analyze the pH balance in the blood and proper working of the lungs. The test also perform different measurements including, partial pressure of carbon dioxide and oxygen, oxygen saturation, oxygen content and pH. Two different tests have been used to measure blood oxygen level, arterial blood gas and pulse oximeter. Arterial blood gas (ABG), a blood test, helps in detecting the level of gases in the blood, oxygen evaluation and acid-base status. An ABG test is done to detect different breathing diseases including lung diseases, cystic fibrosis and asthma as well as pH balance in the blood of kidney failure, heart failure and diabetic patients [2,3]. Pulse oximeter, a noninvasive device, helps to detect or estimate the level of carbon dioxide and oxygen saturation in the blood [4]. The capillaries in the toe, finger or earlobe receives infrared light and reads the peak of oxygen level in the blood. It may give incorrect reading if the probe falls off the finger, toe or earlobe. Normal pulse oximeter reading has a range of 95 to 100 percent. The reading may be 2 percent higher or lower from normal blood oxygen level because pulse oximeter test has 2 percent error window [5,6].

Ailurophobia, commonly known as cat phobia, is the irrational and persistent fear of cats and is included in specific type of phobia. Other names that are used for this phobia are elurophobia and gatophobia. For most people it is less about fear than about loathing, similar the reaction many people gave about rats and snakes [7]. In this survey

a correlation is checked between cat phobia and blood oxygen level using pulse oximeter device.

Material and Methods

Project design

A questionnaire was designed to estimate the impact of cat phobia on blood oxygen level. Total 200 students, including both male and female, were selected from Bahauddin Zakariya University from the department of IMBB (Institute of Molecular Biology and Biotechnology) and were asked about the fear of cats. Their peripheral oxygen saturation was estimated and the blood oxygen level was measured using 'pulse oximeter' device. Pulse oximetry involves the noninvasive measurement of arterial oxygen saturation [8,9].

Measurement of peripheral oxygen saturation

Peripheral oxygen saturation (SpO_2) is an estimation of the percentage of oxygenated haemoglobin as compared to total amount of haemoglobin in the blood and is usually measured with a pulse oximeter device. SpO_2 can be calculated with pulse oximetry with the help of following formula:

$$S_{pO_2} = \frac{HbO_2}{HbO_2 + Hb}$$

Where HbO_2 is oxygenated haemoglobin and Hb is deoxygenated haemoglobin.

Statistical Analysis

To analyze the results of this survey, M Stat software was used and student's *t*-test was performed. $p < 0.1$ was considered as significant value in this study.

Results and Discussion

The relation between blood oxygen level and Ailurophobia is given in table 1. *T-test* was performed to estimate the correlation of blood oxygen level with cat phobia. The data collected from 200 individuals, including both male and female, suggests that there is a significant relation between cat phobia and the blood oxygen level. The *p*-values of calculated data for male, female and both (male and female) students were 0.69, 0.08 and 0.11 respectively as shown in figure 1. The significant *p*-value is <0.1 and the calculated *p*-values suggests that there is an impact of blood oxygen level on people having cat phobia.

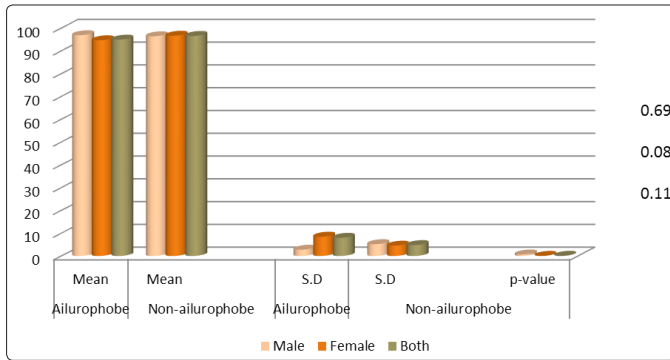


Figure 1: A graph chart illustrating the mean, standard deviation and *p*-values. The calculated *p*-values were 0.69, 0.08 and 0.11 for male, female and both individuals

The estimation of percentage of male and female students having fear of cats is given in table 2. In this survey of blood oxygen level and cat phobia with 59 male students and 141 female students only 16.95% male were ailurophobic while 83.05% were non-ailurophobic. Almost 47.52% female students were ailurophobic and 52.48% were non-ailurophobic. The total calculated percentage of students specifies that 61.5% were not afraid of cats and only 38.5% students were highly afraid of cats.

Table 1: Relation of normal blood oxygen level (Mean ± SD) with Ailurophobia

Gender	Ailurophobe	Non-Ailurophobe	<i>p</i> -value
Male	96.9 ± 2.77	96.43 ± 5.21	0.69
Female	94.67 ± 8.49	96.68 ± 4.55	0.08
Both	94.96 ± 8.01	96.58 ± 4.80	0.11

**p*<0.1

The *p*-values of male, female and both male and female students were calculated and compared with *p*<0.1. The calculated *p*-values indicate that there is a correlation between Ailurophobia and peripheral oxygen saturation.

Table 2: Estimation of percentage of male and female students having fear of cats

Gender	Yes	No
Male	16.95%	83.05%
Female	47.52%	52.48%
Both	38.5%	61.5%

Conclusion

In this study a questionnaire was developed to check the correlation of blood oxygen level with ailurophobia. The blood oxygen level of 200 individuals was measured with the help of 'pulse oximeter'. The analysis of collected data from both male and female students specifies that there is a significant correlation between blood oxygen level and cat phobia. The calculated results suggest that there is a great impact of cat phobia on normal oxygen saturation in females.

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