Alteration of Health Insurance Policies for Fit and Unfit Population in India

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Abstract

Background: As the individuals, who are into fitness activity with fitness clubs, pays the membership fee and the taxes involved and also the health insurance amount, has lesser risk to avail the insurance. While the individual with no fitness activity gives only the insurance amount which is same as a fit person but has high risk of getting a health disease and to avail the insurance amount. The objective of the study is to benefit the fitter population in India by spending less on insurance amount and also the insurance companies by having the valuable fitness data of the individuals in the country. Methods: The study will use the VO2 max parameter as the methodology to classify the fit and unfit individuals. Conclusion: The results indicated that there are individuals who are fit and are having lesser risk to avail the insurance policy as per their VO2 max scores. Therefore, the research will benefit the fitter individuals in the country by paying less health insurance costs.

Keywords: Cardiovascular health, Cardiovascular strength, Fitness data, Health Insurance, VO2 Max

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1. Introduction:

The condition of the heart-related disease has been immense and growing in India. With the new lifestyle which shifted from agrarian diet to junk and fast-food diet, along with increasing use of tobacco and the growing obesity, diabetes, stress, hypertension, dyslipidemia it has added fuel to cardiovascular diseases (CVD)¹. With the fast-paced growing economy of India, there has been a massive growth in cardiovascular diseases. It contributed to 28.1% of deaths in the year 2016, compared with 15.2% deaths in 1990, despite the lack of the latest medical facilities and technologies². Hindustan Times³ article quotes that “25% of heart attacks occur under the age of 40”. To cover up these health conditions the insurance agencies provide policies to keep yourself financially ready in case of any heart-related emergency. The condition of India in terms of total health expenditure per capita money is very low as compared with the United States of America and the United Kingdom and as per 2015 data we lie at the rank of 156 behind countries like Bhutan, Nigeria, Sri Lanka⁴.

To keep oneself safe, the individuals go through the process of ensuring. The Insurance company provides different health insurance plans to provide financial stability in case of various health issues. One cannot just wait to have a health-related issue and then go to the hospital. There are many causes to CVD and these are the factors that can or cannot be controlled but physical fitness plays a major role. Fitness plays a major role in keeping an individual safe from a lot of health conditions and one of them is CVD⁵. As stated by, Sallis et al.⁶, there is a direct correlation between fitness and low risk of heart disease with cardiovascular strength and cardiovascular diseases. This is also supported in the research by Fernström et al.⁷, that an individual doing aerobic exercises has seen a significant reduction in the risk of heart diseases.

In recent years, the population in India are getting aware of the advantages of fitness in their lives and to improve their overall fitness. With an increase in the population being more health-
conscious, they are moving towards fitness and fitness clubs to avoid any health-related diseases. This increase we can see in the article by SMERGERS company\(^{(8)}\). It states that there has been a growth of 16-18% in the fitness industry from the past few years and there are over 21000 fitness and wellness centers in India. The article also states the increase in the usage of fitness-related apps and the potential of high growth of the fitness-related app industry in India.

With this massive increase in awareness of fitness, the population is spending their money on fitness club membership as seen in the article by Vora\(^{(9)}\) that, six lakhs active users in India are spending an average of 350-400 USD per year, amounting to 2.6 billion USD market size and with additional 18% GST\(^{(10)}\). Also getting themselves insured by the insurance's health care policies. Which is in turn spending more than an individual who is not doing any fitness-related activity and only paying insurance fees. In the current scenario, the cost of insurance for the fit and unfit individuals for heart-related insurances are equal amounts.

This study will benefit the fitter population in India by spending less on insurance amount and also the insurance companies by having the valuable fitness data of the individuals in the country. This study is very important, as the individual who is into fitness activity with gymnasiums pays the membership fee and the taxes involved and also the health insurance amount and has a lesser risk to avail the insurance. While the individual with no fitness activity gives only the insurance amount which is the same as a fit person but has a high risk of getting a health disease and to avail the insurance amount.

The health insurance policy provides health coverage, tax benefits and other benefits such as OPD expenses are fewer. There are only 44% of the population in India which has health insurance \(^{(11)}\). This includes both fit and unfit individuals in the country. While the fitter person pays the membership fees, the GST involved and the insurance amount, which is more than a person who does not involve in any fitness activity and has a higher risk to get heart-related disease. There must be an alteration to the insurance policy for the fit individual who has a lesser risk to avail the policy as compared to a person who does not involve in fitness and has a higher risk to avail the policy. Therefore, to pay less, the individuals will start going for a fitness activity to reduce the amount paid and also the risk of getting a heart disease.

In return, the fitness industry and the insurance industry can work in collaboration. We have understood that the value of data will be much higher than gold in the future. The insurance company will carry the database of the individuals of their fitness. As per the article, How Fitness Analytics Can Help Your Fitness Business\(^{(12)}\) by Glofox, there has seen a 6% increase in the business, productivity, and output for those who use data-driven decision making than those who do not. So, this data could be efficiently used or made available to parallel businesses like the fitness industry or the sports industry in the country, providing the data as per demographics that where the population is fitter in the country. Helping the sports industry and fitness industry to grow as well as the fitness in the country.

Few studies have shown exercise to be preventive care because of its huge physiological benefits. It also focused upon increasing the profitability for the insurance companies by engaging more people into physical activity and use the psychology and behavior economics of these individuals to provide subsidy in their insurance programs. As per an article, the Insurance Regulatory and Development Authority of India (IRDAI) has also been looking out to promote preventive healthcare, through its latest draft guidelines on wellness and preventive benefits\(^{(13)}\). That means if a person is fit and engages in a regular fitness activity, he gets discounts in premiums in insurances. Based on this, the policyholder may get benefits and discount vouchers to buy protein supplements and consumable health supplements. The discounts on OPD consolations, treatment for health issues, pharmaceuticals, and health checkups done by the in-network hospitals will be the same as before. There has been no study done on this topic to alter the health insurance policy amount to the individuals based on their fitness levels.

The research will determine fitness based on the fitness level of the individual by the level of their VO\(_2\) max score. As per Capristo, n.d.\(^{(14)}\), VO\(_2\) max is nothing but the oxygen utilized by one person during intense or maximal workout or exercise. The VO\(_2\) max is the best measurement for a person’s cardiorespiratory fitness, endurance, and aerobic fitness. A person can generate more energy if more oxygen is utilized during the exercise. Thus, as per Gupta et al., n.d.\(^{(15)}\) cardiovascular fitness has a direct correlation with CVD risk. VO\(_2\) max will give us a measure of a person being fit or unfit and a risk of health.
This research will provide evidence that the cost applied for a fit individual must be lesser than that of an unfit individual for an insurance health care policy. It will also model a profit-maximizing choice for health insurance companies to use the fitness tests data and engaging more individuals into fitness and provide subsidy in their insurance.

2. Material & methods:

The subjects were healthy young males and females, aged 20–35 years. The subjects were chosen depending upon the following inclusion and exclusion criteria.

- **Included Individuals**
  a. The study included healthy male and female subjects between the age group of 20 - 35 years.
  b. Subjects were both smokers and non-smokers.
  c. Subjects were both individuals who consume alcohol and not consume alcohol.
  d. Subjects were the members of a Fitness Club (Fitness Regiment, Pune) and workout often.
  e. Subjects paid regular health insurance every year.
  f. Pays health insurance per year.

- **Excluded Individuals**
  a. Individuals on any medication.
  b. Individuals with a history of any acute or chronic illness.

2.1 Data collection procedure:

100 individuals, eligible for the tests were asked to assemble after obtaining their consent to appear for the fitness test. There was an initial explanation regarding the purpose of this test, test procedure, method of the test, and how to perform the test to the individuals. The test was conducted early in the morning and every individual went through the test in the same comfortable environmental condition. Before the test day, the individuals were informed with the day of the test and were asked to be in comfortable sports attire. The subjects were also asked not to consume any heavy meals of breakfast one hour before the test. The subjects were also asked not to indulge in any physical activity before the test. Before the test, the individuals were asked to have their height, weight and age noted. In this study, we will be using the sophisticated calculator developed by Topend Sports, from the published tables in an article by Ramsbottom et al.\(^ {16} \), to calculate the VO2 max using the Beep test scores. There was a use of beep test sound track and speakers for assisting the individuals. The beep test scores were then noted down and calculations were made.

2.2 Statistical technique:

Sample of 100 individuals. Average age 27.55 ±4.212
Sampling technique used – Purposive sampling.

3. Results and Discussion:

CopyThe individuals performed the Beep tests. The beep test scores were recorded along with the height weight and the age. The beep test score was then used to calculate the VO2 max score using the sophisticated calculation technique by Topend Sports, from the published tables in an article by Ramsbottom et al.\(^ {16} \), to calculate the VO2 max using the Beep test scores. The beep tests were rated according to the age category from 20-29 and 30-39. The reference table is down below. Refer to the book L et al.,\(^ {17} \).

### Table 1. VO2 max criteria for Men (ml/kg/min)

<table>
<thead>
<tr>
<th>Age</th>
<th>Very Poor</th>
<th>Poor</th>
<th>Fair</th>
<th>Good</th>
<th>Excellent</th>
<th>Superior</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>Under 33.0</td>
<td>33.0-36.4</td>
<td>36.5-42.4</td>
<td>42.5-46.4</td>
<td>46.5-52.4</td>
<td>Over 52.4</td>
</tr>
<tr>
<td>30-39</td>
<td>Under 31.5</td>
<td>31.5-35.4</td>
<td>35.5-40.9</td>
<td>41.0-44.9</td>
<td>45.0-49.4</td>
<td>Over 49.4</td>
</tr>
</tbody>
</table>

http://doi.org/10.36295/ASRO.2020.231724
Table 2. VO2 max criteria for Women (ml/kg/min)

<table>
<thead>
<tr>
<th>Age</th>
<th>Very Poor</th>
<th>Poor</th>
<th>Fair</th>
<th>Good</th>
<th>Excellent</th>
<th>Superior</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>Under 23.6</td>
<td>23.6-28.9</td>
<td>29.0-32.9</td>
<td>33.0-36.9</td>
<td>37.0-41.0</td>
<td>Over 41.0</td>
</tr>
<tr>
<td>30-39</td>
<td>Under 22.8</td>
<td>22.8-26.9</td>
<td>27.0-31.4</td>
<td>31.5-35.6</td>
<td>35.7-40.0</td>
<td>Over 40.0</td>
</tr>
</tbody>
</table>

As per the VO2 max, the individuals were numbered in each rating. The table below gives details regarding the number.

Table 3. Number of men as per VO2 max rating (ml/kg/min)

<table>
<thead>
<tr>
<th>Rating/Age</th>
<th>20-29</th>
<th>30-39</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superior</td>
<td>12</td>
<td>11</td>
<td>23</td>
</tr>
<tr>
<td>Excellent</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Good</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Fair</td>
<td>13</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Very Poor</td>
<td>14</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>TOTAL</td>
<td>80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Number of Women as per VO2 max rating (ml/kg/min)

<table>
<thead>
<tr>
<th>Rating/Age</th>
<th>20-29</th>
<th>30-39</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superior</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Excellent</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Good</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Fair</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Poor</td>
<td>8</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Very Poor</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As per published article, for every increase in 10 ml/kg/min of VO2 max the risk of cancer reduces by 17%. The table above depicts the number of individuals with low, medium and high risk of heart disease.

Table 5. Classification of individuals as per their VO2 Max rating

<table>
<thead>
<tr>
<th></th>
<th>MEN</th>
<th>WOMEN</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOP</td>
<td>35</td>
<td>7</td>
<td>42%</td>
</tr>
<tr>
<td>MIDDLE</td>
<td>23</td>
<td>4</td>
<td>27%</td>
</tr>
<tr>
<td>LOWEST</td>
<td>22</td>
<td>9</td>
<td>31%</td>
</tr>
</tbody>
</table>

From Table 5. The top individuals have the least risk of CVD, followed by middle and then lowest, which has the highest risk of getting a heart disease. According to the study, the results were found that 42% of individuals in the sample were in the least risk of heart disease. 27% were at medium risk. Whereas, 31% of individuals were at high risk of getting a heart disease.
The main finding of the study was that there are individuals with good VO2 max scores, thus as per VO2max, UC Davis Sports Medicine, n.d.(18), these individuals have good cardiovascular fitness. And as per Eaton, n.d.(19), the better the cardiovascular fitness lesser the risk of CVD. Thus, these individuals have less risk of getting heart disease. This gives the individual a less chance to avail the insurance amount by the individual. These individuals in the sample are the regular members in a gym and who work out often, pays taxes as well as membership fees. They also pay insurance amounts yearly. The insurance companies charged every individual in the same manner, regardless of them being fit or unfit.

With the growing awareness of fitness, the people are moving towards getting healthier and fitter to avoid any health-related issues as per an article by www.ETHealthworld.com, n.d.(20). People are joining gyms and fitness clubs to improve their lifestyle. This lifestyle costs them membership fees and taxes. Therefore, the fitter population, or future-fit population, who has less risk to avail insurance premium are paying insurance fees, the membership fee, and the taxes, which is unfair.

The insurance companies must bring a change in their business model. This change will assess the individual according to their fitness levels and then charge the premium fee accordingly. As per an article by Sanghvi(13), Indian insurance may consider fitness as a parameter in the insurance amount.

This awareness of fitness can be motivated and pushed to the top by the Insurance agencies, bringing in subsidy programs or discounts for those who do physical activities. The insurance companies can generate huge revenue with the data they collect and sell it to the fitness and health industry of India. This will help the nation to get healthier and the insurance agencies to generate more revenue.

The fitness data collected can be very beneficial as per the article by Benefits & Dangers of Fitness Data Analytics(21), and this data collected can be used as a source of revenue, by providing it to the sports and fitness industry of India, to target more customers. The data will be more valuable than gold in the coming future. This can compensate for the loss of revenue from the less paying fitter individuals. In the future, this will be a better source of profit for the insurance agencies.

4. Conclusion:

Individuals with higher VO2 max has less risk of getting heart disease and must pay less insurance fee per year as compared to the individual with less VO2 max score. This will provide benefit to the fitter population in India and also promote fitness. Insurance agencies can also use this data for profit-maximizing and as a new source of revenue.

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