CHAPTER VI

Field Survey Analysis
6.1 Introduction:

In this chapter, the field study was aimed at capturing the opinion and perception of respondents about the importance of nanotechnology and nanomedicine in improving the health facilities in order to fulfill the requirements of insured persons. The present study uses primary data collected from hospitals of Iran. The analytical tool and techniques have been used for analysis and interpretation of data. There were two types of hospitals considered for survey:

- Hospitals under direct control of SSO
- Hospitals under contract of SSO

These are two sections in the chapter; the first section presents the brief profile of Iran. It also presents the composition and structure of sample respondents. The second section of the chapter has been devoted to analysis the field survey information. For the analysis the descriptive statistical techniques and probit models have been used.

Section A

6.2 Brief Profile of Iran

As a backdrop to the field survey analysis the brief profile of Iran has been presented in the following section.
Geographically Iran is located on south of Azerbaijan, Turkmenistan and Armenia. Jointly Iran, Russia and Kazakhstan are in neighboring of Caspian Sea. Iran is neighbor of Pakistan and Afghanistan on the east and neighbor of Iraq on the west. Iran is boarded by turkey on the North West. Oman and Persian Gulfs are neighbors of Iran on the south. Iran is a Middle East country with more than 600000sq. meter of land area and more that 75 million populations. Iran with a background of an old civilization experienced first empire in five hundred fifty BCE that was collapsed by Romans in three hundreds thirty BCE. The second empire happened by Sasanian in two hundred twenty four CE and Iran led west and center of Asia powerfully for four hundred years. Safavid emerged in Iran as dominant government with Islamic tendencies in first decade of 15\textsuperscript{th} century and it was important event in Iranian history. The first constitution was provided by establishing a revolution based on reforms in first decade of 19\textsuperscript{th} century. Occupation of Iran by USA and England led Iran to unstable political situation in fifth decade of 19\textsuperscript{th} century and Iran was made ready for Islamic revolution. Iran constitution is a combination of democratic principles and Islamic basics. Iran community includes different ethics and variety of languages. Iran
was known as eighth publisher of books in the world and enjoyed most progressive activities in science in year two thousands eleven.

**Economy of Iran:**

Economy of Iran depends on oil export. 11 percent of petroleum and 80 percent of natural gas resources of the world belong to Iran. Iran is ranked as second in oil exporting and forth in oil producing in the world. 80 percent of Iran’s income comes from oil export and economic incomes of Iran is above middle. In 2011, GDP was increased to 480 billion and service sector, industry and agriculture respectively determined GDP of Iran. The lowest salary in Iran was 130 dollars per month in 2013. In spite of dependency of Iran’s economy on oil export, government has developed car industry and private sector has contributed to produce components and parts of body. Due to oil resources and in order to supply domestic demands, petrochemicals industry has been promoted to produce materials derived from oil. In agriculture sector, recognized products such as saffron, pistachio, fruits, dried fruits and date enjoy global fame. Iran is most experienced country in carpet industry and has influenced carpet market of the world for decades. Exporting raw materials such as minerals is one of Iran’s economic activities. Recently, government has provided facilities and created research fields for experts to develop technology of nano. Also government has paid attention to technology of information and biotechnology to access new resources of income in the future.

**Demography of Iran:**

Population of Iran had increased in 20\textsuperscript{th} century and Iran faced continuing increase of population from 20 million to above 70 million. But considerably it has reduced in 21\textsuperscript{th} century. Rate of birth in Iran has come down and it has resulted in 1.3 percent of rate of population growth. Consequently in 35 years the population of Iran will be around 100 million. By 2006 above one million Afghans took refuge to Iran and immigration to Iran is continuing. In recent years Iranians have immigrated to abroad and rate of immigration is above 4.9 million. Iran’s government is responsible to offer social security services to all members of society. By social security services, government financially supports retired, old aged, unemployed and disabled individuals and provides health care services for insured people. Government is able
to pay costs of social security services by contributions paid by insured individuals and incomes gained from tax.

**6.2.2 Composition of Sample Respondents**

In this section, an attempt has made to provide the information about sample respondents and it also includes structure and composition of sample respondents.

**Table 6.1**

**Organization and Type of Respondents**

<table>
<thead>
<tr>
<th>Description</th>
<th>Organization</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SSO</td>
<td>under SSO contract</td>
</tr>
<tr>
<td>Patient</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Staff</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Doctor</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>150</strong></td>
</tr>
</tbody>
</table>

Source: Field survey data, completed by researcher.

The above table presents the information about organization and type of respondents.

There were sixty patients each from SSO and under SSO contract. There were sixty each medical staff members from SSO and under SSO contract. There were thirty each doctor from SSO and SSO under contract. Equal weight has been given to both SSO and under SSO contract.

**Table 6.2**

**Organization and Gender**

<table>
<thead>
<tr>
<th>Description</th>
<th>Organization</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SSO</td>
<td>under SSO contract</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>75</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>150</strong></td>
</tr>
</tbody>
</table>

Source: Field survey data, completed by researcher.
The above table presents the information about organization and gender. There were one fifty male and female respondents in the sample size and equal weight has been given to both SSO and under SSO contract.

Table 6.3
Organization and Level of Education

<table>
<thead>
<tr>
<th>Description</th>
<th>SSO</th>
<th>under SSO contract</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary School</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Less than high School</td>
<td>20</td>
<td>22</td>
<td>42</td>
</tr>
<tr>
<td>High school</td>
<td>22</td>
<td>22</td>
<td>44</td>
</tr>
<tr>
<td>College graduated</td>
<td>5</td>
<td>21</td>
<td>26</td>
</tr>
<tr>
<td>Bachelor</td>
<td>57</td>
<td>48</td>
<td>105</td>
</tr>
<tr>
<td>Master</td>
<td>10</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>PhD</td>
<td>7</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>Physician</td>
<td>6</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Specialist</td>
<td>18</td>
<td>17</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
</tbody>
</table>

Source: Field survey data, completed by researcher.

The above table presents the information about organization and level of education. There were five respondents in SSO with primary school education. There were twenty respondents in SSO and twenty two respondents in under SSO contract with less than high school education. There were twenty two respondents in SSO and twenty two respondents in under SSO contract with high school education. There were five respondents in SSO and twenty one respondents in under SSO contract with college education. There were fifty seven respondents in SSO and forty eight respondents in under SSO contract with bachelor education. There were eighteen respondents in SSO and seventeen respondents in under SSO contract with master education. There were seven respondents in SSO and nine respondents in under SSO contract with PhD education. There were six respondents in SSO and four respondents in under SSO contract with physician education there were six
respondents in SSO and four respondents in under SSO contract with specialist education. Equal weight has not been given to both SSO and under SSO contract.

**Table 6.4**

**Organization and Nature of Job**

<table>
<thead>
<tr>
<th>Nature of Job</th>
<th>Description</th>
<th>Organization</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SSO</td>
<td>Under SSO contract</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>31</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Temporary</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Permanent</td>
<td>97</td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>150</td>
<td>150</td>
</tr>
</tbody>
</table>

Source: Field survey data, completed by researcher.

The above table presents the information about organization and nature of job. There were ninety seven respondents in SSO and one hundred eleven respondents under SSO contract with permanent job. There were twenty two respondents in SSO with temporary job. There were thirty one respondents in SSO and thirty nine respondents under SSO contract with others. Equal weight has not been given to both SSO and under SSO contract.

**Table 6.5**

**Organization and Sector**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Description</th>
<th>Organization</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SSO</td>
<td>under SSO contract</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>30</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Industry</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Service</td>
<td>111</td>
<td>112</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>150</td>
<td>150</td>
</tr>
</tbody>
</table>

Source: Field survey data, completed by researcher.

The above table presents the information about organization and sector. There were one hundred eleven respondent in SSO and on hundred twelve respondents in under SSO contract in service sector. There were nine respondents in SSO in industry sector. There were thirty respondents in SSO and thirty eight respondents in under SSO contract in others sector.
Equal weight has not been given to both SSO and under SSO contract.

Table 6.6

<table>
<thead>
<tr>
<th>Description</th>
<th>Organization</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SSO</td>
<td>under SSO contract</td>
</tr>
<tr>
<td>Institution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>30</td>
<td>38</td>
</tr>
<tr>
<td>Public</td>
<td>0</td>
<td>112</td>
</tr>
<tr>
<td>Private</td>
<td>104</td>
<td>0</td>
</tr>
<tr>
<td>Own</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Employer</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>150</td>
</tr>
</tbody>
</table>

Source: Field survey data, completed by researcher.

The above table presents the information about organization and institution. There were eight respondents as employer in SSO. There were eight respondents has own business in SSO. There were one hundred four respondents in private sector in SSO. There were one hundred twelve respondents in public sector under SSO contract. There were thirty respondents in SSO and thirty eight respondents in under SSO contract with others. Equal weight has not been given to both SSO and under SSO contract.
Section B:

6.3 Primary Data Analysis

This section of the chapter has been devoted to analyze the field survey information. For the analysis, the ‘probit models” have been used.

6.3.1 Social Insurance:

Social insurance for individual has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\( P \) = Perception of respondents on social insurance

Or = Organization (1 for under direct control by SSO, 2 for under SSO contract)

TR = Type of Respondents (1 for Patient, 2 for Medical staff, 3 for Doctor)

Ag = Age (quantitative Data)

Gr = Gender (1 for Male, 2 for Female)

LE = Length of Education (quantitative Data)

\( \beta \)'s are coefficients of parameters.

The above abbreviations have been used for further models.

\[ P = +0.153 - 0.358 Or - 1.479 TR + 0.029 Ag - 0.476 Gr + 0.356 LE \]

\[ Z = (+0.06) (-0.63) (-1.82) (+1.01) (-0.87) (+1.98) \]

\[ Sig = (0.952) (0.530) (0.068) (0.313) (0.383) (0.047) \]

Number of obs = 300  LR chi2 (5) = 6.02  Prob>chi2 = 0.3040  Pseudo R2 = 0.1792

Insured individuals are supported financially in critical situations by social security. The probit model was used to estimate the impact of dimensions on respondents’ perception on public insurance. It has been found from the results that the constant parameter has positive sign and it is not significant. The organization has negative sign and it is not significant. The type of respondents has negative sign and it is significant; therefore public insurance is more necessary for patient compared to medical staff and doctors. The age has positive sign and it is not significant. The gender has negative sign and it is not significant. Length of education has positive sign and it is significant. Those having higher level of education also had more positive responses about public insurance. Accordingly, ninety eight percent of
respondents felt that public insurance is necessary for health security of people. Therefore, public health insurance is important for majority of the respondents, irrespective of org, age and gender.

6.3.2 Health Insurance:

Health insurance for individuals has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[
P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e
\]

Where,

\[
P = \text{Perception of respondents on health insurance}
\]

\[
P = 6.627 - 0.615 Or + 0.228 TR - 0.027 Ag - 0.748 Gr - 0.142 LE
\]

\[
Z = (3.16) (-1.33) (+0.48) (-1.30) (-1.50) (-1.28)
\]

\[
\text{Sig}= (0.002) (0.185) (0.633) (0.194) (0.134) (0.200)
\]

Number of obs=300   LR chi2 (5) =7.46   Prob>chi2 =0.1886   Pseudo R2 = 0.1467

Health insurance pays costs of medical services in cases such as severe diseases and accidents. The probit model was used to estimate the impact of dimensions on respondents’ perception on health insurance. It has been found from the results that the constant parameter has positive sign and it is significant. The organization has negative sign and it is not significant. The type of respondents has positive sign and it is not significant. The age has negative sign and it is not significant. The gender has negative sign and it is not significant. Length of education has negative sign and it is not significant. Accordingly, ninety eight percent of respondents opined that health insurance is necessary for health security of people. Therefore, health insurance is important for majority of the respondents, irrespective of organization, type of respondents, age, gender and length of education.

6.3.3 Disability Insurance:

Disability insurance for individuals has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[
P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e
\]
Where,

\[ P = \text{Perception of respondents on disability insurance} \]

\[
P = +5.715 -0.710 \text{Or} +0.061 \text{TR} -0.026 \text{Ag} -0.457 \text{Gr} -0.082 \text{LE} 
\]

\[
Z = (+3.38) (-1.72) (+0.158) (-1.52) (-1.23) (-0.89) 
\]

\[
\text{Sig}= (0.001) (0.085) (0.882) (0.129) (0.217) (0.374) 
\]

\[
\text{Number of obs} = 300 \quad LR \text{ chi2 (5)} = 8.10 \quad \text{Prob} > \text{chi2} = 0.1510 \quad \text{Pseudo R2} = 0.1219 
\]

Disability insurance has very significant role to support of insured and his family in during disability. The probit model was used to estimate the impact of dimensions on respondents’ perception on disability insurance. It has been found from the results that the constant parameter has positive sign and it is significant. The organization has negative sign and it is significant; therefore, compared to the respondents from under SSO contract more numbers of respondents from SSO have opined that disability insurance is necessary for individuals. Hence disability insurance is more necessary for SSO compared to under SSO contract respondents.

The type of respondents has positive sign and it is not significant. The age has negative sign and it is not significant. The gender has negative sign and it is not significant. Length of education has negative sign and it is not significant. Accordingly, ninety eight percent of respondents expressed that disability insurance is necessary for health security of people. Therefore, disability insurance is important for majority of the respondents, irrespective of type of respondents, age, gender and length of education.

6.3.4 Retirement Insurance:

Retirement insurance for individuals has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 \text{Or} + \beta_2 \text{TR} + \beta_3 \text{Ag} + \beta_4 \text{Gr} + \beta_5 \text{LE} + e \]

Where,

\[ P = \text{Perception of respondents on retirement insurance} \]

\[
P = 1.658 +0.447 \text{Or} -0.670 \text{TR} +0.024 \text{Ag} +0.035 \text{Gr} +0.029 \text{LE} 
\]

\[
Z = (0.89) (+0.95) (-1.00) (+0.78) (+0.08) (+0.20) 
\]

\[
\text{Sig}= (0.372) (0.341) (0.318) (0.433) (0.935) (0.843) 
\]

\[
\text{Number of obs} = 300 \quad LR \text{ chi2 (5)} = 5.38 \quad \text{Prob} > \text{chi2} = 0.3716 \quad \text{Pseudo R2} = 0.1266 
\]
Retirement Insurance has very important role to support insured and his family after retirement. The probit model was used to estimate the impact of dimensions on respondents’ perception on retirement insurance. It has been found from the results that the constant parameter has positive sign and it is not significant. The organization has positive sign and it is not significant. The type of respondents has negative sign and it is not significant. The age has positive sign and it is not significant. The gender has positive sign and it is not significant. Length of education has positive sign and it is not significant. Accordingly, ninety eight percent of respondents expressed that retirement insurance is necessary for individuals. Therefore, retirement insurance is important for majority of the respondents, irrespective of organization, type of respondents, age, gender and length of education.

6.3.5 Life Insurance:

Life insurance for individuals has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

**P** = Perception of respondents on life insurance

\[ P = 0.359 + 0.062 Or - 0.435 TR + 0.038 Ag + 0.090 Gr + 0.064 LE + e \]

**Z** = (+0.22) (+0.17) (-0.94) (+1.68) (+0.25) (+0.56)

**Sig** = (0.828) (0.866) (0.346) (0.194) (0.803) (0.577)

Number of obs = 300  LR chi2 (5) = 5.14  Prob > chi2 = 0.3988  Pseudo R2= 0.0874

Cost of funeral is paid to deceased’s family by life insurance. The probit model was used to estimate the impact of dimensions on respondents’ perception on life insurance. It has been found from the results that the constant parameter has positive sign and it is not significant. The organization has positive sign and it is not significant. The type of respondents has negative sign and it is not significant. The age has positive sign and it is not significant. The gender has positive sign and it is not significant. Length of education has positive sign and it is not significant. Accordingly, ninety eight percent of respondents opined that life insurance is necessary for people. Hence, life insurance is significant for majority of the respondents, irrespective of organization, type of respondents, age, gender and length of education.
6.3.6 Unemployment Insurance:

Unemployment insurance for individuals has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\( P = \text{Perception of respondents on unemployment insurance} \)

\[ P = +4.481 -0.035 Or -0.311 TR -0.022 Ag -0.249 Gr -0.050 LE \]

\[ Z = (+3.18) (-0.11) (-0.69) (-1.36) (-0.76) (-0.53) \]

\[ \text{Sig} = (0.001) (0.913) (0.488) (0.175) (0.450) (0.598) \]

Number of obs = 300  LR chi2 (5) = 7.21  Prob > chi2 = 0.2055  Pseudo R2 = 0.0977

Unemployment Insurance for individuals is one of the most factors to support insured and his family during unemployment. The probit model was used to estimate the impact of dimensions on respondents’ perception on unemployment insurance. The probit model was used to estimate the impact of dimensions on respondents’ perception on unemployment insurance. It has been found from the results that the constant parameter has positive sign and it is significant. The organization has negative sign and it is not significant. The type of respondents has negative sign and it is not significant. The age has negative sign and it is not significant. The gender has negative sign and it is not significant. Length of education has negative sign and it is not significant. Accordingly, ninety seven percent of respondents expressed that unemployment insurance is necessary for people. Hence, life insurance is important for major of the respondents, irrespective of organization, type of respondents, age, gender and length of education.

6.3.7 Supplementary Insurance:

Supplementary insurance for individuals has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\( P = \text{Perception of respondents on Supplementary insurance} \)

\[ P = +1.915 -0.006 Or -0.528 TR +0.004 Ag -0.155 Gr -0.045 LE \]

\[ Z = (+1.66) (-0.02) (-1.49) (+0.33) (-0.606) (+0.58) \]
Cost and services that are not defined by social insurance are paid by supplementary insurance. The probit model was used to estimate the impact of dimensions on respondents’ perception on Supplemental insurance. It has been found from the results that the constant parameter has positive sign and it is significant. The organization has negative sign and it is not significant. The type of respondents has negative sign and it is not significant. The age has positive sign and it is not significant. The gender has negative sign and it is not significant. Length of education has negative sign and it is not significant. Therefore, ninety five percent of respondents expressed that Supplementary insurance is necessary for individuals. Thus, Supplementary insurance is significant for majority of the respondents, irrespective of organization, type of respondents, age, gender and length of education.

6.3.8 Accidental Death Insurance:

Accidental death insurance for individuals has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\[ P = \text{Perception of respondents on Accidental death insurance} \]

\[ P = +2.240 -0.090 Or -0.169 TR +0.002 Ag -0.250 Gr +0.003 LE \]

\[ Z = (+1.74) (-0.33) (-0.46) (+0.15) (-0.896) (+0.04) \]

\[ \text{Sig} = (0.082) (0.742) (0.645) (0.883) (0.374) (0.964) \]

Number of obs = 300  LR chi2 (5) = 1.80  Prob > chi2 = 0.8762  Pseudo R2 = 0.0191

This type of insurance pays to insured individuals in case of accidents that result in death and hurts. The probit model was used to estimate the impact of dimensions on respondents’ perception on accidental death insurance. It has been found from the results that the constant parameter has positive sign and it is significant. The organization has negative sign and it is not significant. The type of respondents has negative sign and it is not significant. The age has positive sign and it is not significant. The gender has negative sign and it is not significant. Length of education has positive sign and it is not significant. Therefore, ninety six percent of
respondents expressed that accidental death insurance is necessary for people. Hence, accidental death insurance is important for majority of the respondents, irrespective of organization, type of respondents, age, gender and length of education.

### 6.3.9 Health Care Cost:

Health care cost by insurance company has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[
P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e
\]

Where,

- **P** = Perception of respondents on health care costs
- **Or** = Organization
- **TR** = Type of respondents
- **Ag** = Age
- **Gr** = Gender
- **LE** = Length of education

\[
P = -0.849 + 0.029 Or + 0.201 TR - 0.007 Ag - 0.144 Gr - 0.023 LE
\]

\[
Z = \begin{pmatrix}
-1.02 \\
+0.16 \\
+0.86 \\
-0.84 \\
-0.76 \\
-0.44 \\
\end{pmatrix}
\]

\[
Sig = \begin{pmatrix}
0.308 \\
0.875 \\
0.391 \\
0.400 \\
0.449 \\
0.660 \\
\end{pmatrix}
\]

Number of obs = 300  LR chi2 (5) = 2.78  Prob> chi2 = 0.7345  Pseudo R2 = 0.0126

The probit model was used to estimate the impact of dimensions on respondents’ perception on payment of treatment cost. It has been found from the results that the constant parameter has negative sign and it is not significant. The organization has positive sign and it is not significant. The type of respondents has positive sign and it is not significant. The age has negative sign and it is not significant. The gender has negative sign and it is not significant. Length of education has negative sign and it is not significant. Accordingly only nineteen percent of respondents opined that cost of treatment is completely paid by insurance company. Therefore, majority of respondents expressed that only part of treatment cost is paid by insurance company; irrespective of organization, type of respondents, age, gender and length of education.

### 6.3.10 Development of Health Care Services

Importance of health and influence of health on other aspects of life drive insurance organization to develop health care services. The binary probit model was used for the analysis.

\[
P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e
\]

Where,

- **P** = Perception of respondents on development of health care services

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Better health is central to human happiness and well-being. Many factors influence health status and an insurance company ability to provide quality health care services for its insured. One of the most important factors is development of health care services. The probit model was used to estimate the impact of dimensions on respondents’ perception on development of health care services. It has been found from the results that the constant parameter has positive sign and it is significant. The organization has negative sign and it is not significant. The type of respondents has positive sign and it is not significant. The age has negative sign and it is not significant. The gender has negative sign and it is not significant. Length of education has negative sign and it is not significant. Accordingly, ninety five percent of respondents felt that development of health care services is necessary for health security of people. Therefore, development of health care services is significant for majority of the respondent; irrespective of organization, type of respondents, age, gender and length of education.

6.3.11 Updating of Health Care Services:

Updating health care services has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1Or + \beta_2TR + \beta_3Ag + \beta_4Gr + \beta_5LE + e \]

Where,

\[ P = \text{Perception of respondents on updating health care services} \]

\[ P = 2.603 -0.072Or +0.274TR -0.012Ag -0.096Gr -0.070LE \]

\[ Z = (2.74) (-0.35) (+1.09) (-1.14) (-0.46) (-1.24) \]

\[ \text{Sig= (0.006) (0.278) (0.247) (0.253) (0.646) (0.216)} \]

Number of obs = 300  LR chi2 (5) = 2.65  Prob> chi2 = 0.7541  Pseudo R2 = 0.0150

In developed countries, updating health care services is one of the best ways to offer comprehensive health care services to insured. The probit model was used to estimate the impact of dimensions on respondents’ perception on updating health care services. It has been found from the results that the constant parameter has positive
sign and it is significant. The organization has negative sign and it is not significant. The type of respondents has positive sign and it is not significant. The age has negative sign and it is not significant. The gender has negative sign and it is not significant. Length of education has negative sign and it is not significant. Therefore, ninety one percent of respondents opined that updating of health care services is necessary for health security of people. Thus, updating of health care services is important for majority of the respondent; irrespective of organization, type of respondents, age, gender and length of education.

### 6.3.12 Substitution of New Methods:

Substitution of new methods has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[
P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e
\]

Where,

- \(P = \) Perception of respondents on substitution of new methods
- \(\beta_0\) = Constant parameter
- \(\beta_1, \beta_2, \beta_3, \beta_4, \beta_5\) = Coefficients

\[
P = 1.567 -0.438 Or -0.097 TR +0.005 Ag -0.135 Gr -0.000 LE
\]

\[Z = (2.01)\ (2.59)\ (-0.47)\ (+0.60)\ (-0.80)\ (-0.01)\]

\[Sig=\ (0.045)\ (0.01 0)\ (0.637)\ (0.549)\ (0.422)\ (0.989)\]

Number of obs = 300  LR chi2 (5) = 9.42 Prob> chi2 = 0.0935  Pseudo R2 = 0.0314

Advanced methods have very important role to treat diseases. The probit model was used to estimate the impact of dimensions on respondents’ perception on substitution of new methods. It has been found from the results that the constant parameter has positive sign and it is significant. The organization has negative sign and it is significant. Therefore, compared to the respondents from under SSO contract, more number of respondents from SSO opined the necessity of substitution of new method .Thus substitution of new methods is more important for SSO compared to under SSO contract. The type of respondents has negative sign and it is not significant. The age has positive sign and it is not significant. The gender has negative sign and it is not significant. Length of education has negative sign and it is not significant. Accordingly, eighty percent of respondents felt substitution of new methods is necessary for health security of people. Therefore, substitution of new methods is significant for majority of the respondents, irrespective of type of respondents, age, gender and length of education.

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6.3.13 Effectiveness of Current Treatment Methods:

Effectiveness of current methods has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\[ P = \text{Perception of respondents on effectiveness of current methods} \]

\[ P = \begin{array}{ccccccc}
-0.155 & -0.160 & -0.344 & -0.005 & -0.377 & +0.015 \\
\end{array} \]

\[ Z = \begin{array}{ccccccc}
-0.17 & -0.85 & -1.56 & -0.47 & -1.97 & +0.30 \\
\end{array} \]

\[ \text{Sig} = \begin{array}{ccccccc}
0.864 & 0.393 & 0.120 & 0.644 & 0.005 & 0.764 \\
\end{array} \]

Number of obs = 300   LR chi2(5) = 8.71   Prob> chi2 = 0.1212   Pseudo R2 = 0.0376

Effectiveness a treatment method makes to individuals. The probit model was used to estimate the impact of dimensions on respondents’ perception on effectiveness of current methods of medicines. It has been found from the results that the constant parameter has negative sign and it is not significant. The organization has negative sign and it is not significant. The type of respondents has negative sign and it is not significant. The age has negative sign and it is not significant. The gender has negative sign and it is significant; therefore current methods are more effective for male respondents compared to female. Length of education has positive sign and it is not significant. According to only thirteen percent of the respondents, the current methods of medicine, is effective. Therefore, majority of the respondents expressed that current methods of medicine is not effective, irrespective of organization, type of respondents, age and length of education.

6.3.14 Cost of Current Treatment Methods:

Cost of current methods has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\[ P = \text{Perception of respondents on Cost of current methods} \]

\[ P = \begin{array}{ccccccc}
+1.212 & -0.145 & -0.302 & +0.005 & +0.209 & +0.018 \\
\end{array} \]

\[ Z = \begin{array}{ccccccc}
1.52 & -0.82 & -1.32 & +0.53 & +1.16 & +0.36 \\
\end{array} \]

\[ \text{Sig} = \begin{array}{ccccccc}
0.120 & 0.419 & 0.186 & 0.595 & 0.244 & 0.716 \\
\end{array} \]
Process of health care ranging from prevention to drugs, diagnosis and therapy services imply costs. The probit model was used to estimate the impact of dimensions on respondents’ perception on cost of current methods. It has been found from the results that the constant parameter has positive sign and it is not significant. The organization has negative sign and it is not significant. The type of respondents has negative sign and it is not significant. The age has positive sign and it is not significant. The gender has positive sign and it is not significant. Length of education has positive sign and it is not significant. Therefore, eighty four percent of respondents felt that cost of current method is expensive. Thus, cost of current methods is costly for majority of the respondents, irrespective of org, irrespective of organization, type of respondents, age, gender and length of education.

6.3.15 Reducing Duration of Treatment:

Reducing duration of treatment has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[
P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e
\]

Where,

\[
P = \text{Perception of respondents on reducing duration of treatment}
\]

\[
P = 2.043 -0.254 Or + 0.031 TR -0.008 Ag -0.144 Gr -0.012 LE
\]

\[
\begin{align*}
Z & = (2.45) (-1.37) (+0.14) (-0.87) (-0.78) (-0.24) \\
\text{Sig} & = (0.014) (0.170) (0.891) (0.384) (0.437) (0.810)
\end{align*}
\]

Number of obs = 300  LR chi2 (5) = 3.20  Prob> chi2 = 0.6685  Pseudo R2 = 0.0136

In terms of treatment methods, duration of treatment has important role to be selected by individuals. The probit model was used to estimate the impact of dimensions on respondents’ perception on reducing duration of treatment. It has been found from the results that the constant parameter has positive sign and it is significant. The organization has negative sign and it is not significant. The type of respondents has positive sign and it is not significant. The age has negative sign and it is not significant. The gender has negative sign and it is not significant. Length of education has negative sign and it is not significant. Accordingly, eighty six percent of respondents expressed that new methods is necessary for reducing duration of treatment. therefore, the new methods to reduction of duration of treatment is
important for majority of the respondents, irrespective of organization, type of respondents, age, gender and length of education.

6.3.16 Reducing Side Effects:

Reducing side effects by using of new methods has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\[ P = \text{Perception of respondents on reducing side effects} \]

\[ P = 2.110 - 0.101 Or + 0.207 TR + 0.001 Ag - 0.212 Gr - 0.047 LE \]

\[ Z = (1.99) (-0.43) (+0.76) (+0.11) (-0.90) (-0.71) \]

\[ \text{Sig} = (0.047) (0.665) (0.448) (0.915) (0.369) (0.475) \]

Number of obs = 300  LRchi2 (5) = 1.86  Prob> chi2 = 0.8677  Pseudo R2 = 0.0137

Reducing side effects is other significant factor to select a remedy method. The probit model was used to estimate the impact of dimensions on respondents’ perception on reducing side effects. It has been found from the results that the constant parameter has positive sign and it is significant. The organization has negative sign and it is not significant. The type of respondents has positive sign and it is not significant. The age has positive sign and it is not significant. The gender has negative sign and it is not significant. Length of education has negative sign and it is not significant. Accordingly, ninety four percent of respondents opined that the new methods of treatment are necessary to reduce side effects. Thus, the new methods to reduction of side effects are significant for majority of the respondents, irrespective of organization, type of respondents, age, gender and length of education.

6.3.17 Awareness of Nano:

Individual's awareness of nano has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\[ P = \text{Perception of respondents on nano} \]

\[ P = -1.809 - 0.020 Or + 0.528 TR - 0.023 Ag - 0.016 Gr + 0.165 LE \]
Nano is one billionth on scale of meter. The Probit model was used to estimate the impact of dimensions on respondents’ perception on awareness of nano. It has been found from the results that the constant parameter has negative sign and it is significant. The organization has negative sign and it is not significant. The type of respondents has positive sign and it is significant; therefore the doctors have more awareness of nano compared to medical staff and patients. The age has positive sign and it is not significant. The gender has negative sign and it is not significant. Length of education has positive sign and it is significant; those having higher level of education also had more awareness of nano. Accordingly, sixty eight percent of respondents have awareness of nano. Thus, the awareness of people of nano is high, irrespective of organization, age and gender.

6.3.18 Nano Concept:

Awareness of nano concept has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\( P \) = Perception of respondents on nano concept

\( P = -2.105 + 0.133 Or + 0.709 TR - 0.017 Ag + 0.000 Gr + 0.024 LE \)

\( Z = (-2.73) \) (0.76) (3.06) (-1.69) (0.00) (0.46) \)

\( \text{Sig} = (0.006) (0.449) (0.002) (0.091) (0.998) (0.649) \)

Number of obs = 300  LR chi2 (5) = 56.43  Prob> chi2 = 0.0000  Pseudo R2 = 0.1771

The probit model was used to estimate the impact of dimensions on respondents’ perception on nano concept. It has been found from the results that the constant parameter has negative sign and it is significant. The organization has positive sign and it is not significant. The type of respondents has positive sign and it is significant; therefore the doctors have more awareness of nano concept compared to medical staff and patients. The age has negative sign and it is significant; therefore, the younger respondents have more awareness of concept of nano compared to older. The gender has negative sign and it is not significant. Length of education has
positive sign and it is not significant. Accordingly, only twenty two percent of respondents have awareness of nano concept. Thus the awareness of people of concept of nano is very less, irrespective of organization, gender and length of education.

6.3.19 Nanotechnology:

Individual's awareness of nanotechnology has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\[ P = \text{Perception of respondents on nanotechnology} \]

\[ P = \begin{array}{cccccc}
-2.072 & -0.020 & +0.628 & -0.018 & -0.067 & +0.158 \\
(-2.13) & (-0.11) & (2.79) & (-1.78) & (-0.36) & (+0.95) \\
0.033 & 0.912 & 0.005 & 0.075 & 0.717 & 0.003 \\
\end{array} \]

Number of obs = 300   LR chi2 (5) = 146.48   Prob> chi2 = 0.0000  Pseudo R2 = 0.3850

Manipulating materials on scale of molecules and atoms is nanotechnology. The probit model was used to estimate the impact of dimensions on respondents’ perception on awareness of nano. It has been found from the results that the constant parameter has negative sign and it is significant. The organization has negative sign and it is not significant. The type of respondents has positive sign and it is significant. Therefore the doctors have more awareness of nanotechnology compared to medical staff and patients. The age has negative sign and it is significant; thus the young respondents have more awareness of nanotechnology in comparison to older. The gender has negative sign and it is not significant. Length of education has positive sign and it is significant; those having higher level of education also had more awareness of nanotechnology. Accordingly, sixty seven percent of respondents have awareness of nanotechnology. Thus, the awareness of people of nanotechnology is high and majority of respondents have awareness of nanotechnology, irrespective of organization and gender.
6.3.20 Applications of Nanotechnology:

Awareness of nanotechnology applications has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\[ P = \text{Perception of respondents on applications of nanotechnology} \]

\[ P = -1.376 - 0.235 Or + 0.319 TR - 0.010 Ag - 0.883 Gr + 0.070 LE \]

\[ Z = (-1.95) (-1.47) (+1.62) (-1.19) (-0.55) (+1.53) \]

\[ \text{Sig} = (0.051) (0.141) (0.105) (0.233) (0.581) (0.125) \]

Number of obs = 300  LR chi2 (5) = 43.82  Prob > chi2 = 0.0000  Pseudo R2 = 0.1170

Different fields of science and industry are expanded for more achievements by application of nanotechnology. The probit model was used to estimate the impact of dimensions on respondents’ perception on applications of nanotechnology. It has been found from the results that the constant parameter has negative sign and it is significant. The organization has negative sign and it is not significant. The type of respondents has positive sign and it is not significant. The age has negative sign and it is not significant. The gender has negative sign and it is not significant. Length of education has positive sign and it is not significant. Therefore, only thirty one percent of respondents have awareness of application of nanotechnology. Thus the awareness of people of nanotechnology applications is less, irrespective of organization, type of respondents, age, gender and length of education.

6.3.21 Products of Nanotechnology:

Awareness of nanotechnology products has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\[ P = \text{Perception of respondents on products of nanotechnology} \]

\[ P = -1.933 - 0.128 Or + 0.232 TR - 0.006 Ag - 0.101 Gr + 0.069 LE \]

\[ Z = (-2.52) (-0.73) (+1.1) (-0.70) (-0.58) (+1.42) \]

\[ \text{Sig} = (0.012) (0.463) (0.270) (0.486) (0.564) (0.157) \]

Number of obs = 300  LR chi2 (5) = 25.02  Prob > chi2 = 0.0001  Pseudo R2 = 0.0858
Products of nanotechnology enable experts to develop science and industry. The probit model was used to estimate the impact of dimensions on respondents’ perception on products of nanotechnology. It has been found from the results that the constant parameter has negative sign and it is significant. The organization has negative sign and it is not significant. The type of respondents has positive sign and it is not significant. The age has negative sign and it is not significant. The gender has negative sign and it is not significant. Length of education has positive sign and it is not significant. Accordingly, only nineteen percent of respondents have awareness of products of nanotechnology. Therefore the awareness of people of nanotechnology products is very less, irrespective of organization, type of respondents, age, gender and length of education.

6.3.22 Use of Nanotechnology Products:

Use of nanotechnology products by individuals has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\[ P = \text{Perception of respondents on use of nanotechnology products} \]

\[ P = -2.927 - 0.128 Or + 0.245 TR + 0.920 Ag - 0.105 Gr + 0.069 LE \]

\[ Z = (-2.79) (-0.54) (+0.84) (+0.1) (-0.44) (+0.99) \]

\[ \text{Sig} = (0.005) (0.593) (0.398) (0.920) (0.660) (0.323) \]

Number of obs = 300  LR chi2 (5) = 12.48  Prob> chi2 = 0.0288  Pseudo R2 = 0.0849

Products of nanotechnology are able to change our lifestyle. Using of this technology we can live better and easier than before. The probit model was used to estimate the impact of dimensions on respondents’ perception on use of nanotechnology products. It has been found from the results that the constant parameter has negative sign and it is significant. The organization has negative sign and it is not significant. The type of respondents has positive sign and it is not significant. The age has positive sign and it is not significant. The gender has negative sign and it is not significant. Length of education has positive sign and it is not significant. Accordingly, only six percent of respondents have used of nanotechnology products. Therefore, very few respondents have used of
nanotechnology products, irrespective of organization, type of respondents, age, gender and length of education.

6.3.23 Awareness of Nanomedicine:
Individual's awareness of nanomedicine has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\[ P = \text{Perception of respondents on nanomedicine} \]

\[ \begin{align*}
P &= -3.137 + 0.04 Or + 1.137 TR - 0.009 Ag - 0.063 Gr + 0.092 LE \\
Z &= (-3.37) (+0.25) (+5.05) (-0.90) (-0.35) (+1.72) \\
\text{Sig} &= (0.001) (0.800) (0.000) (0.369) (0.728) (0.086)
\end{align*} \]

Number of obs = 300  LR chi2 (5) = 163.30  Prob > chi2 = 0.0000  Pseudo R2 = 0.3928

Application of nanotechnology in medicine is nanomedicine. It is often defined as the repair, construction and control of human biological systems using devices built upon nanotechnology standards. The probit model was used to estimate the impact of dimensions on respondents’ perception on nanomedicine. It has been found from the results that the constant parameter has negative sign and it is significant. The organization has positive sign and it is not significant. The type of respondents has positive sign and it is significant; therefore the doctors have more awareness of nanomedicine compared to medical staff and patients. The age has negative sign and it is not significant. The gender has negative sign and it is not significant. Length of education has positive sign and it is significant; those having higher level of education also had more awareness of nanomedicine. Accordingly; forty nine percent of respondents have awareness of nanomedicine. Thus, the awareness of people of nanomedicine is moderate, irrespective of organization, age and gender.

6.3.24 Application of Nanomedicine:
Awareness of nanomedicine applications has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.
\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\[ P = \text{Perception of respondents on application of nanomedicine} \]

\[
P = -4.411 + 0.274 Or + 0.166 TR - 0.004 Ag - 0.226 Gr + 0.117 LE
\]

\[
Z = (-4.52) (1.44) (+4.81) (-0.41) (-1.20) (+1.96)
\]

\[
Sig = (0.000) (0.149) (0.000) (0.682) (0.231) (0.050)
\]

Number of obs = 300  LR chi2 (5) =165.98  Prob> chi2 = 0.0000  Pseudo R2 = 0.4128

Medical science enjoys significant development by application of nanomedicine. The probit model was used to estimate the impact of dimensions on respondents’ perception on application of nanomedicine. It has been found from the results that the constant parameter has negative sign and it is significant. The organization has positive sign and it is not significant. The type of respondents has positive sign and it is significant; therefore the doctors have more awareness of application of nanomedicine compared to medical staff and patients. The age has negative sign and it is not significant. The gender has negative sign and it is not significant. Length of education has positive sign and it is significant; those having higher level of education also had more awareness of applications of nanomedicine. Accordingly; thirty nine percent of respondents have awareness of nanomedicine application. Thus, the awareness of people of application of nanomedicine is relatively low, irrespective of organization, age and gender.

6.3.25 Products of Nanomedicine:

Awareness of nanomedicine products has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\[ P = \text{Perception of respondents on nanomedicine products} \]

\[
P = -4.317 + 0.191 Or + 1.393 TR - 0.002 Ag - 0.046 Gr + 0.035 LE
\]

\[
Z = (-4.7) (0.93) (+4.55) (-0.18) (-0.23) (+0.44)
\]

\[
Sig = (0.000) (0.352) (0.000) (0.859) (0.816) (0.657)
\]

Number of obs = 300  LR chi2 (5) = 126.59  Prob> chi2 = 0.0000  Pseudo R2 = 0.3912
Medical services are improved and expanded by products of nanomedicine. The probit model was used to estimate the impact of dimensions on respondents’ perception on products of nanomedicine. It has been found from the results that the constant parameter has negative sign and it is significant. The organization has positive sign and it is not significant. The type of respondents has positive sign and it is significant; therefore the doctors have more awareness of products of nanomedicine in comparison to medical staff and patients. The age has negative sign and it is not significant. The gender has negative sign and it is not significant. Length of education has positive sign and it is not significant. Accordingly; only twenty two percent of respondents have awareness of nanomedicine products. Therefore, the awareness of people of products of nanomedicine is very less, irrespective of organization, age, gender and length of education.

6.3.26 Methods of Treatment:

Use of treatment methods by individuals has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\[ P = \text{Perception of respondents on type of treatment} \]

\[ P = -2.390 + 0.216 Or + 0.101 TR - 0.012 Ag - 0.010 Gr + 0.095 LE \]

\[ Z = (-3.6) \quad (+1.24) \quad (+0.47) \quad (-1.25) \quad (-0.06) \quad (+1.87) \]

\[ \text{Sig} = (0.002) \quad (0.215) \quad (0.637) \quad (0.212) \quad (0.953) \quad (0.062) \]

Number of obs = 300  LR chi2 (5) = 27.26  Prob > chi2 = 0.0001  Pseudo R2 = 0.0900

Choice of treatment method depends on duration of treatment, side effects, effectiveness, cost, easiness to use. The probit model was used to estimate the impact of dimensions on respondents’ perception on method of treatment. It has been found from the results that the constant parameter has negative sign and it is significant. The organization has positive sign and it is not significant. The type of respondents has positive sign and it is not significant. The age has negative sign and it is not significant. Length of education has positive sign and it is significant; those having higher level of education were more interested in choice of nanomedicine method in comparison to low level
education respondents. Accordingly; only twenty percent of respondents were interested in using nanomedicine methods. Therefore, Interest of people to use nanomedicine methods is very low, irrespective of organization, type of respondents, age and gender.

6.3.27 Replacement by Nanomedicine Methods:

Replacement by nanomedicine methods have been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\[ P = \text{Perception of respondents on replacement by nanomedicine} \]
\[ P = 2.170 + 0.324 Or + 0.568 TR + 0.004 Ag - 0.204 Gr + 0.032 LE \]

\[ Z = (3.02) (2.12) (3.04) (0.57) (-1.33) (0.76) \]

\[ \text{Sig} = (0.003) (0.034) (0.002) (0.568) (0.183) (0.449) \]

Number of obs = 300  LR chi2 (5) = 48.43  Prob> chi2 = 0.0000  Pseudo R2 = 0.1169

Faster and more efficient treatment process in medical services is possible by application of nanomedicine. The probit model was used to estimate the impact of dimensions on respondents’ perception on replacement by nanomedicine methods. It has been found from the results that the constant parameter has negative sign and it is significant. The organization has positive sign and it is significant. Therefore, compared to the respondents from SSO, more number of respondents from under SSO contract was interested in replacement by nanomedicine methods instead of current methods. The type of respondents has positive sign and it is significant. Therefore, compared to the medical staff and patients respondents, more number of doctors was interested in replacement by nanomedicine methods instead of current methods. The age has positive sign and it is not significant. The gender has negative sign and it is not significant. Length of education has positive sign and it is not significant. Therefore; seventy six percent of respondents opined that current method could be replaced with nanomedicine methods. Therefore, possibility of replacement is high, irrespective of age, gender and length of education.
6.3.28 Nanomedicine Efficiency:

Nanomedicine efficiency has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 \text{Or} + \beta_2 \text{TR} + \beta_3 \text{Ag} + \beta_4 \text{Gr} + \beta_5 \text{LE} + e \]

Where,

\[ P = \text{Perception of respondents on nanomedicine efficiency} \]

\[ P= -1.660\, -0.181\text{Or} + 0.315\text{TR} - 0.000\text{Ag} + 0.169\text{Gr} + 0.057\text{LE} \]

\[ Z= (-2.38)\, (-1.17)\, (+1.67)\, (-0.03)\, (+1.02)\, (+1.33) \]

\[ \text{Sig}= (0.17)\, (0.241)\, (0.094)\, (0.975)\, (0.307)\, (0.182) \]

Number of obs = 300 LR chi2 (5) = 32.80  Prob> chi2 = 0.000  Pseudo R2 = 0.0850

Nanotechnology will offer doctors new ways to diagnose and treat patients, boosting efficiency and slashing costs. The probit model was used to estimate the impact of dimensions on respondents’ perception on nanomedicine efficiency. It has been found from the results that the constant parameter has negative sign and it is not significant. The organization has negative sign and it is not significant. The type of respondents has positive sign and it is significant. Therefore; compared to the medical staff and patients respondents, more number of doctors have opined that nanomedicine methods is effective. Thus, nanomedicine methods are more effective for doctors compared to medical staff and patients respondents. The age has negative sign and it is not significant. The gender has positive sign and it is not significant. Length of education has positive sign and it is not significant. According to thirty four percent of the respondents, then nanomedicine methods, is effective. Therefore, majority of the respondents opined that nanomedicine methods are not effective, and current methods efficiency is higher than nanomedicine methods, irrespective of age, gender and length of education.

6.3.29 Side Effects of Nanomedicine:

Side effects of nanomedicine have been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 \text{Or} + \beta_2 \text{TR} + \beta_3 \text{Ag} + \beta_4 \text{Gr} + \beta_5 \text{LE} + e \]

Where,

\[ P = \text{Perception of respondents on nanomedicine side effects} \]
Less side effects of nanomedicine are one of advantages of nanomedicine. The probit model was used to estimate the impact of dimensions on respondents’ perception on nanomedicine side effects. It has been found from the results that the constant parameter has negative sign and it is significant. The organization has negative sign and it is not significant. The type of respondents has positive sign and it is significant. Therefore; compared to the medical staff and patients respondents, more number of doctors have opined that nanomedicine methods side effects is fewer than current methods. Thus, nanomedicine methods have fewer side effects for doctors compared to medical staff and patients' respondents. The age has positive sign and it is not significant. The gender has positive sign and it is not significant. Length of education has positive sign and it is not significant. According to thirty nine percent of the respondents, side effects of nanomedicine are less than current methods. Therefore, majority of the respondents expressed that nanomedicine side effects is not fewer than current method and current methods side effects is less, Irrespective of organization, age, gender and length of education.

### 6.3.30 Duration of Treatment:

Duration of treatment by nanomedicine methods has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[
P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e
\]

Where,

- **P** = Perception of respondents on duration of treatment

\[
P= -2.317 + 0.180Or + 0.622TR + 0.005Ag - 0.053Gr + 0.025LE
\]

\[
Z= (-3.23) (+ 1.16) (+3.26) (+0.69) (-0.34) (+0.59)
\]

\[
Sig= (0.001) (0.254) (0.001) (0.493) (0.732) (0.558)
\]

Number of obs = 300  LR chi2 (5) = 47.00  Prob> chi2 = 0.0000  Pseudo R2 = 0.1182

Reduction of duration of treatment is one of the main purposes of nanomedicine applications. The probit model was used to estimate the impact of dimensions on respondents’ perception on duration of treatment by nanomedicine.
methods. It has been found from the results that the constant parameter has negative sign and it is significant. The organization has positive sign and it is not significant. The type of respondents has positive sign and it is significant. Therefore; compared to the medical staff and patients respondents, more number of doctors have opined that duration of treatment by nanomedicine methods is fewer than duration of treatment by current methods. Thus, nanomedicine methods have fewer duration of treatment for doctors compared to medical staff and patients' respondents. The age has positive sign and it is not significant. The gender has negative sign and it is not significant. Length of education has positive sign and it is not significant. According to thirty eight percent of the respondents, duration of treatment by nanomedicine methods is less than current methods. Therefore, majority of the respondents expressed that duration of treatment by nanomedicine methods is not fewer than current method and duration of treatment by current methods is less, Irrespective of organization, age, gender and length of education.

6.3.31 Easy Application of Medicines:

Easy application of medicines has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[
P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e
\]

Where,

\[P = \text{Perception of respondents on easy application of medicines}\]

\[P= -3.798 + 0.257 Or + 0.552 TR + 0.009 Ag - 0.1876 Gr + 0.090 LE\]

\[Z = (-4.77) (+1.49) (+2.59) (+1.00) (-1.02) (+1.81)\]

\[\text{Sig} = (0.000) (0.137) (0.010) (0.316) (0.309) (0.071)\]

Number of obs = 300  LR chi2 (5) = 66.13  Prob > chi2 = 0.0000  Pseudo R2 = 0.1912

Easy application of nanomedicine is one of the significant features of them. The probit model was used to estimate the impact of dimensions on respondents’ perception on easy application of medicines. It has been found from the results that the constant parameter has negative sign and it is significant. The organization has positive sign and it is not significant. The type of respondents has positive sign and it is significant. Therefore; compared to the medical staff and patients respondents, more number of doctors have opined easy application of nanomedicine. Thus, nanomedicine methods have easier application for doctors compared to medical staff.
and patients’ respondents. The age has positive sign and it is not significant. The gender has negative sign and it is not significant. Length of education has positive sign and it is significant. Those having higher level of education also had more positive responses about easy application of nanomedicine methods. According to twenty six percent of the respondents, use of nanomedicine methods is easy. However, majority of the respondents expressed that use of nanomedicine method is not easy, Irrespective of organization, age, gender and length of education.

6.3.32 Cost of Nanomedicine Methods:

Costs of nanomedicines methods have been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[
P = \beta_0 + \beta_1 \text{Or} + \beta_2 \text{TR} + \beta_3 \text{Ag} + \beta_4 \text{Gr} + \beta_5 \text{LE} + e
\]

Where,

\[
P = \text{Perception of respondents on cost of nanomedicine methods}
\]

\[
P= \begin{array}{ccccccc}
-0.434 & -0.097 & 0.098 & -0.010 & 0.083 & -0.042 & \\
(-0.45) & (-0.46) & (+0.37) & (-0.92) & (+0.39) & (-0.74) & \\
(0.654) & (0.648) & (0.710) & (0.359) & (0.698) & (0.46) & \\
\end{array}
\]

Number of obs = 300   LR chi2 (5) = 1.37   Prob> chi2 = 0.9271  Pseudo R2 = 0.0082

In terms of treatment methods, cost of medicines has important role to be selected by individuals. The probit model was used to estimate the impact of dimensions on respondents’ perception on cost of nanomedicine methods. It has been found from the results that the constant parameter has negative sign and it is not significant. The organization has negative sign and it is not significant .The type of respondents has positive sign and it is not significant. The age has negative sign and it is not significant. The gender has positive sign and it is not significant. Length of education has negative sign and it is not significant. Accordingly, only eight percent of the respondents opined that price of nanomedicine methods are not expensive. Therefore, majority of the respondents expressed that cost of nanomedicine methods are expensive for people, Irrespective of organization, type of respondents, age, gender and length of education.
6.3.33 Cost-effectiveness of Medicines:

Cost-effectiveness of medicines has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

- \( P \) = Perception of respondents on cost effectiveness of medicines
- \( Or \) = Organization
- \( TR \) = Type of respondents
- \( Ag \) = Age
- \( Gr \) = Gender
- \( LE \) = Length of education

Using the binary probit model, the following results were obtained:

\[
\begin{align*}
P &= -2.612 + 0.301 Or + 1.095 TR + 0.005 Ag + 0.123 Gr - 0.060 LE \\
Z &= (-3.39) (+1.74) (+4.65) (+0.58) (+0.71) (-1.21) \\
Sig &= (0.001) (0.082) (0.000) (0.559) (0.480) (0.226)
\end{align*}
\]

Number of obs = 300  LR chi2 (5) = 59.45  Prob > chi2 = 0.0000  Pseudo R2 = 0.1786

Nanomedicine methods by high efficiency reduce cost of medical services. The probit model was used to estimate the impact of dimensions on respondents’ perception on cost effectiveness medicines. It has been found from the results that the constant parameter has negative sign and it is significant. The organization has positive sign and it is significant. Therefore, compared to the respondents from SSO, more number of respondents from under SSO contract has opined that nanomedicine methods are cost effective. Thus, nanomedicine methods are more cost effective for under SSO contract compared to SSO respondents. The type of respondents has positive sign and it is significant. Therefore, compared to the medical staff and patients respondents, more number of doctors expressed that nanomedicine methods is cost effective. Thus, cost effectiveness of nanomedicine methods is more significant for doctors compared to medical staff and patients respondents. The age has positive sign and it is not significant. The age has positive sign and it is not significant. The gender has positive sign and it is not significant. Length of education has negative sign and it is not significant. Accordingly, only twenty four percent of the respondents opined that nanomedicine methods are cost effective. Therefore, majority of the respondents expressed that nanomedicine methods isn't cost effective and current method is more cost effective, Irrespective of age, gender and length of education.
6.3.34 Cost of Nanomedicine Products in Future:

Nanomedicine products cost in future has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[
P = \beta_0 + \beta_1 \text{Or} + \beta_2 \text{TR} + \beta_3 \text{Ag} + \beta_4 \text{Gr} + \beta_5 \text{LE} + e
\]

Where,

\[
P = \text{Perception of respondents on cost of nanomedicine products in future}
\]

\[
P = -1.006 + 0.147 \text{Or} + 0.325 \text{TR} + 0.009 \text{Ag} + 0.020 \text{Gr} + 0.011 \text{LE}
\]

\[
Z = (-1.42) (+ 0.98) (+1.78) (+1.2) (+0.13) (+0.28)
\]

\[
\text{Sig} = (0.156) (0.328) (0.075) (0.232) (0.896) (0.782)
\]

Number of obs = 300  LR chi2 (5) = 11.49  Prob > chi2 = 0.0425  Pseudo R2 = 0.0293

Cost of nanomedicine products in future plays very important role in health of individuals. The probit model was used to estimate the impact of dimensions on respondents’ perception on nanomedicine products cost in future. It has been found from the results that the constant parameter has negative sign and it is not significant. The organization has positive sign and it is not significant. The type of respondents has positive sign and it is significant. Therefore, compared to the medical staff and patients respondents, more number of doctors expressed that cost of nanomedicine will be decreased in future. The age has positive sign and it is not significant. The gender has positive sign and it is not significant. Length of education has positive sign and it is not significant. According to sixty four percent of the respondents, cost of nanomedicine will be decreased in future. Therefore, majority of the respondents expressed that cost of nanomedicine will be reduced in future, irrespective of organization, age, gender and length of education.

6.3.35 Public Training:

Necessity of public training for individuals to give awareness about nanomedicine applications has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[
P = \beta_0 + \beta_1 \text{Or} + \beta_2 \text{TR} + \beta_3 \text{Ag} + \beta_4 \text{Gr} + \beta_5 \text{LE} + e
\]

Where,

\[
P = \text{Perception of respondents on public training}
\]
Public training is necessary for individuals to gain awareness about nanomedicine applications. The probit model was used to estimate the impact of dimensions on respondents’ perception on public training. It has been found from the results that the constant parameter has negative sign and it is significant. The organization has positive sign and it is not significant. The type of respondents has positive sign and it is not significant. The age has positive sign and it is not significant. The gender has negative sign and it is not significant. Length of education has positive sign and it is not significant. Accordingly, eighty five percent of respondents felt that public training in nanomedicine field is necessary for health of people. Therefore, public training is important for majority of the respondents, irrespective of organization, type of respondents, age, gender and length of education.

6.3.36 Doctor's Awareness:

Doctor's awareness of nanomedicine methods has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e \]

Where,

\[ P = \text{Perception of respondents on doctor's awareness} \]

\[
\begin{align*}
P &= \begin{cases}
-0.504 & +0.075 Or \\
-0.062 TR & +0.008 Ag \\
-0.039 Gr & +0.067 LE
\end{cases}
\]

\[
\begin{cases}
Z &= \begin{cases}
-0.60 & (+ 0.42) \\
+0.30 & (+0.91) \\
-0.22 & (+1.42)
\end{cases}
\]

\[
\begin{cases}
\text{Sig} &= \begin{cases}
(0.551) & (0.676) \\
(0.767) & (0.36 0) \\
(0.829) & (0.157)
\end{cases}
\end{cases}
\]

Number of obs = 300  LR chi2 (5) = 7.15  Prob> chi2 = 0.2099  Pseudo R2 = 0.0282

Considering the significant of nanomedicine applications, awareness of society has important role to fulfill this purpose. The probit model was used to estimate the impact of dimensions on respondents’ perception on doctor's awareness. It has been found from the results that the constant parameter has positive sign and it is not significant. The organization has negative sign and it is not significant. The type of respondents has negative sign and it is significant. Therefore, compared to the medical staff and patients respondents, more number of doctors expressed that doctors
have enough knowledge in nanomedicine field. The age has positive sign and it is not significant. The gender has negative sign and it is not significant. Length of education has positive sign and it is not significant. Accordingly, only seven percent of respondents opined that the doctors have sufficient knowledge in nanomedicine field. Thus, majority of respondents expressed that the doctors don’t have adequate knowledge in nanomedicine field and doctor’s knowledge is very less, irrespective of organization, age, gender and length of education.

6.3.37 Specialization Courses:

Nanomedicine specialization courses for doctors have been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[
P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + e
\]

Where,

\[
P = \text{Perception of respondents on specialization courses}
\]

\[
P = +0.065 +0.064 Or +0.280 TR +0.008 Ag +0.050 Gr +0.033 LE
\]

\[
Z = (+0.06) (+0.29) (+1.02) (+0.65) (+0.23) (+0.53)
\]

\[
\text{Sig} = (0.955) (0.775) (0.305) (0.514) (0.822) (0.597)
\]

Number of obs = 300 LR chi2 (5) = 5.26 Prob > chi2 = 0.3855 Pseudo R2 = 0.0345

Considering the efficiency of nanomedicine, specialized courses for doctors are necessary. The probit model was used to estimate the impact of dimensions on respondents’ perception on specialization courses. It has been found from the results that the constant parameter has positive sign and it is not significant. The organization has positive sign and it is not significant. The type of respondents has positive sign and it is not significant. The age has positive sign and it is not significant. The gender has negative sign and it is not significant. Length of education has positive sign and it is not significant. Therefore, ninety three percent of respondents felt that specialized courses are necessary for doctors. Thus, specialized courses for doctors are very important for majority of the respondents, irrespective of organization, type of respondents, age, gender and length of education.
6.3.38 Nanomedicine Research:

Research in nanomedicine field has been analyzed based on organization, type of respondents, age, gender, length of education. The binary probit model was used for the analysis.

\[ P = \beta_0 + \beta_1 Or + \beta_2 TR + \beta_3 Ag + \beta_4 Gr + \beta_5 LE + \epsilon \]

Where,

\[ P = \text{Perception of respondents on nanomedicine research} \]

\[ P = +1.059 +0.173Or +0.475TR -0.006 Ag +0.340Gr -0.032LE \]

\[ Z = (+0.93) (+0.75) (+1.75) (-0.55) (+1.45) (-0.53) \]

\[ \text{Sig} = (0.353) (0.451) (0.080) (0.582) (0.147) (0.594) \]

Number of obs = 300   LR chi2 (5) = 9.44   Prob> chi2 = 0.0926   Pseudo R2 = 0.0621

Nanomedicine research is a priority to expand medical science and improve medical services. The probit model was used to estimate the impact of dimensions on respondents’ perception on nanomedicine research. It has been found from the results that the constant parameter has positive sign and it is not significant. The organization has positive sign and it is not significant. The type of respondents has positive sign and it is significant. Therefore, compared to the medical staff and patients respondents, more number of doctors expressed the necessity of development of research in nanomedicine field. The gender has positive sign and it is not significant. Length of education has negative sign and it is not significant. Therefore, ninety three percent of respondents opined that. Nanomedicine research should be expanded in future. Thus, development of research in nanomedicine field is very important for majority of the respondents, irrespective of organization, age, gender and length of education.

6.4 Comparative Cost Analysis:

In the following section an attempt has been made to analyze the comparative cost advantages under the current methods of treatment and nanomedicine methods. In order to capture the cost advantages an attempt has been made to collect the data about expenditure towards diabetic treatment for three months. Data collected from sixty respondents those who are taking treatment for diabetic problem. Among sixty respondents thirty of them are using current methods and thirty of them using nanomedicine methods. The results are presented below;
Table 6.7
Comparison of Cost between Current and Nanomedicine Methods
(Expenditure in Rial)

<table>
<thead>
<tr>
<th>Expenditure</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nano</td>
<td>30</td>
<td>5376818.9</td>
<td>1759406.9</td>
<td>321222.3</td>
</tr>
<tr>
<td>Current</td>
<td>30</td>
<td>1584184.8</td>
<td>346754.4</td>
<td>63308.4</td>
</tr>
</tbody>
</table>

Independent Samples Test

<table>
<thead>
<tr>
<th>Description</th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>23.829</td>
<td>.000</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>11.584</td>
<td>31.249</td>
</tr>
</tbody>
</table>

Source: Field Survey Data.

It has been found from the above tables that the average cost of treatment for diabetic patient under the current method is 1584184 Rial and it is 5376818 Rial under nanomedicine method. The difference between the two is 3792634 Rial. It has been found from the F-test that equal variance not found between the series. It has been also found from the t-test that the difference between the two is significant. Therefore, cost of treatment is significantly high under nanomedicine method. However, as found in the perception analysis, people those using nanomedicine method, they have hope in reduction of cost of nanomedicine in future. Hence, the nano medicine method can be used in large scale in SSO for better and efficient treatment and for better results.
6.5 Conclusion:

Considering the importance of nanotechnology and nanomedicine in medical sector and numerous advantages in diseases treatment, the present study attempted to examine the opinion of Iranian people about nanotechnology and nanomedicine. In this chapter an attempt has been made to analyze the field survey data collected from the hospitals of Iran. Due to the importance of insurance services, nanotechnology and nanomedicine have been analyzed in this chapter. It has been found from this survey that:

In Iran, doctors, younger people and the respondents with higher education have more awareness about nanotechnology compared to older people, less educated and patients and medical staff. The results indicated that Iranian don’t have sufficient awareness about nanotechnology applications. Iranians have moderate awareness about nanomedicine and doctors and the respondents with higher education have relatively more awareness about nanomedicine. Sufficient awareness has not been found even among the doctors, highly educated young people about nanomedicine applications. The survey results revealed that medical staff medical staff and patients have negative approach towered the effectiveness of nanomedicine. However, at the same time doctors have positive appreciation about the effectiveness and usefulness of nanomedicine.

Accordingly, there is dire need of increasing the awareness of people about the usefulness of nanomedicine in near further. At the same time doctors and medical staff have to be given proper training for the better utilization of nanomedicine practices. In order to render better health care services ensured people at lesaer than minimum cost.

Majority of people opined that nanomedicine methods and its products are expensive and not cost effective. But, people believed that the cost of nanomedicine methods will be reduced in feature.
6.6 References:


