



Knowledge attitude and practices about pneumococcal infection and vaccination patients who visit the primary health at Taif centers, KSA

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General Note

 Article is recommended to print as color digital version in recycled paper.

ABSTRACT

Background: *Streptococcus pneumoniae* (pneumococcus) is that the leading explanation for morbidity and mortality worldwide. Saudi Arabia could be a host to scores of pilgrims WHO travel annually from everywhere the world for Umrah and therefore the Hajj pilgrimages and are in danger of developing pneumonia or invasive pneumococcal malady (IPD). there's additionally the danger of transmission of *S. pneumoniae* together with antibiotic resistant strains between pilgrims and their potential world spread upon their come back. The World Health Organization (WHO) estimates that pneumococcus is responsible for over 1,000,000 deaths worldwide annually, the very highest mortality from all vaccine-preventable infectious diseases. The country additionally has distinctive challenges posed by inclined population to IPD thanks to folks with hemoglobinopathies, younger age teams with chronic conditions, and growing downside of antibiotic resistance. Since the medicine of pneumococcal illness is constantly changing, with a rise in non-vaccine pneumococcal serotypes, vaccination policies on the effectiveness and utility of vaccines need regular revision. As a part of the Saudi Thoracic Society (STS) commitment to market the most effective practices within the field of respiratory

diseases. Saudi Thoracic Society (STS) we tend to advocate vaccination against pneumococcal infections for all youngsters <5 years old, adults ≥ 50 years old, and people ≥ 6 years old with certain risk factors. These recommendations are based on the presence of a large number of comorbidities in Saudi Arabia population <50 years of age, many of whom have risk factors for contracting pneumococcal infections. *Aim of the study:* To assess the knowledge, attitudes and practices of towards pneumococcal infection and vaccination patients who visit the health centers in 2018. *Method:* A cross sectional study will conduct to primary health centers Taif during 25 of august 2018 till 6 of December, 2018. The survey will conduct on a sample of 101 participant patient in Taif city sampling technique will be used then simple random. *Results:* Regarding sociodemographic characteristics, that the highest proportion of participants age more than 60 years (36.4%) and male participants (60.8%). The majority of participants (82.1%) have a weak knowledge while more than half of them (55.07%) have a positive attitude about the disease. A significant correlation between level of knowledge and education ($P= 0.001$) and is a significant positive correlation between education and attitude were $r= 0.285$. *Conclusion:* The study that there have been weak levels of information and positive perspective toward Pneumococcal infection with a major correlation between knowledge, perspective and participants years of education. Pneumococcal vaccines are shown to scale back the danger of IPD (invasive Pneumococcal disease).

Keywords: Knowledge, attitude, practices, pneumococcal, infection, vaccination, patients, primary health centers, Patient Acceptance of Health Care, Primary Prevention

1. INTRODUCTION

There is a high prevalence within the younger age teams of diabetes, cardiovascular diseases, chronic renal, liver and lung diseases, and hemoglobinopathies in Saudi Arabia. Additionally, innumerable pilgrims return to Saudi Arabia once a year from everywhere the globe for the Umrah and pilgrim's journey, and transmission of *Streptococcus pneumoniae* (including antibiotic resistant strains) between pilgrims is anticipated to occur (Alharbi et al., 2016). Saudi Arabia that an oversized majority of the population (89.5%) less than <50 years elderly, several of whom have risk factors for acquiring pneumococcal infections. The country conjointly has distinctive challenges display by inclined population to IPD due to individuals with hemoglobinopathies, younger age teams with chronic conditions (Tashani et al., 2017). *Streptococci pneumoniae* infection could be a common and heavy unhealthiness that's best prevented by the vaccine. The primary immunizing agent approved by the U.S. Federal Drug Administration in 1977 contained fourteen polysaccharide antigens. Improved immunizing agent introduced in 1983 enclosed twenty three polysaccharide. Each vaccine was effective for immune competent adults; but, young kids and immune compromised adults remained inclined. A medicine immunizing agent was developed consisting of the capsular antigens of seven pneumococcal serotypes normally found in kids. The antigens in this preparation are covalently conjugated to diphtheria protein to make them more antigenic. The conjugate vaccine was expanded to include 13 serotypes by 2010. Though a lot of immunogenic, the conjugate immunizing agent has fewer serotypes than the older 23-valent immunizing agent (Mirsaeidi and Schraufnagel, 2014). Vaccination against pneumococcus is presently within the Kingdom of Saudi Arabia. Since the medical specialty of pneumococcal disease is consistently changing dynamic, as well as a rise in non-vaccine pneumococcal serotypes, vaccination policies on the effectiveness and utility of vaccines need regular revision (Edouard et al., 2018). Vaccination against pneumococcal infections is presently counseled globally for all kids <5 years recent, adults >65 years recent, and folks >6 years recent with sure risk factors for community-acquired pneumonia or invasive pneumococcal sickness (IPD). These recommendations area unit supported age teams, different risk factors, and also the most up-to-date population census during this country (Razavi et al., 2016).

Hazard factors for pneumococcal infection incorporate limits of age kids <2 years old and grown-ups ≥ 65 years old, diabetes mellitus, cigarettes smoking, liquor abuse, inborn immunodeficiency (B or T lymphocyte insufficiency, supplement C1, C2, C3, and C4 lacks), procured immunodeficiency (HIV, immunosuppressive treatment, long haul steroid use, and radiation, danger (e.g., leukemia, lymphoma, Hodgkin, different myeloma, and spread malignancies), chronic liver disease (primary biliary cirrhosis, primary sclerosing cholangitis, sarcoid, hepatitis B or C virus, alcoholic cirrhosis, cryptogenic cirrhosis, immune system hepatitis, and hemochromatosis) (Benkouiten et al., 2014).

Likewise more Risk factors for pneumococcal infection incorporate of chronic heart disease (congestive heart failure, cardiomyopathy), chronic lung disease (asthma, chronic obstructive airways disease, cystic fibrosis, bronchiectasis, idiopathic pulmonary fibrosis, and pneumoconiosis), chronic renal disease (chronic renal failure from any reason and Nephrotic syndrome), strong organ transplantation (heart, liver, kidney, and other), Hemoglobinopathies (sickle cell ailment and other), splenectomy, and Congenital or obtained asplenia, or splenic dysfunction (Alzeer, 2009). The U.S. Communities for Disease Control and Prevention

prescribe that youngsters in danger for pneumococcal pneumonia as characterized by the nearness of chronic disease should receive the 13-valent conjugated immunization. Grown-ups in danger for pneumococcal pneumonia, which incorporates those more than 65 years old and the individuals who have a chronic infection, ought to get the 23-polysaccharide antibody. Immunosuppressed patients of all ages ought to get the two immunizations. Grown-ups ought to be revaccinated once at age 65 years or more seasoned with the 23-polysaccharide immunization gave that at any rate 5 years have slipped by since the previous vaccination (Johnson *et al.*, 2008). The most significant obstructions to grown-up immunization are misperceptions and low consciousness of patients, and deficient learning and negative attitudes of mind of doctors. Numerous grown-ups are unconscious of which immunizations they need and when they ought to get them. People's awareness about protecting their own health is also important in achieving the targeted level of adult immunization. The disposition and conduct of people are impacted by their health literacy, and limited health literacy may cause misperceptions and non-compliance (Ozsisik *et al.*, 2017).

What is pneumococcal illness? Pneumococcal sickness is a common and often mild infection. However it can here and there results in genuine medical issues. These incorporate a center ear disease, a blood contamination, pneumonia, or bacterial meningitis. The bacterium *Streptococcus pneumoniae* (*S. pneumoniae*), which is otherwise called pneumococcus, causes pneumococcal disease.

Obtrusive pneumococcal illness is a perilous condition that is deadly in 10 percent of cases. More established individuals and those with fundamental conditions have a higher risk than others of genuine intricacies. Regular inoculations can avert numerous kinds of pneumococcal illness and the potential entanglements that may emerge (World Health Organization, 2017).

Pneumonia is an infection of the lungs that can make mild serious to severe illness everything being equal. Contingent upon the reason, it can frequently be treated with prescription or prevented with vaccines. Common signs of pneumonia include cough, fever, and difficulty breathing". "Pneumonia can be brought about by infections, microorganisms, and growths. In the United States, regular reasons for viral pneumonia are influenza and respiratory syncytial virus (RSV), and a typical reason for bacterial pneumonia (Varon *et al.*, 2010).

Inoculation inclusion against pneumococcal illness is consistently lower than inclusion for occasional flu among the old populace in Canada and internationally. The latest information accessible from the 2006 Canadian National Immunization Coverage Survey, in light of self-report of immunization status, assessed that lone 39% of people 65 years old and more seasoned had ever been immunized against pneumococcal malady while 70% had gotten the flu antibody that season A 2007 orderly audit of the determinants of flu and pneumococcal immunization in the old, which included 14 thinks about from around the globe, excluding Canada, found the most grounded indicators of pneumococcal inoculation were more established age and doctor suggestion (Schneeberg *et al.*, 2014). Side effects of the pneumococcal vaccine like most vaccines, the childhood and adult versions of the pneumococcal vaccine can sometimes cause mild side effects these include: A mild fever, Redness at the site of the injection. There are no serious side effects listed for either the childhood or adult versions of the vaccine, apart from an extremely rare risk of serious allergic reaction (Nichol *et al.*, 1997).

To our knowledge, there is no study that has explored the knowledge, attitude, and practices related to pneumococcal infection and vaccination among in KSA.

Objectives

- To assess the knowledge and attitudes towards pneumococcal infection and vaccination patients who visit the health centers in 2018.
- To assess the practices towards pneumococcal infection and vaccination patients who visit the health centers in 2018
- To assess if there is relation between level of education and awareness towards pneumococcal infection and vaccination patients who visit the health centers in 2018
- To assess if there is relation between background and awareness towards pneumococcal infection and vaccination patients who visit the health centers in 2018

Research Problem

Saudi Thoracic Society (STS) there is presence of a large number of co morbidities in Saudi Arabia population <50 years of age, many of whom have risk factors for contracting pneumococcal infections There were lack related knowledge attitude, practice, there is no study that has explored the knowledge, attitude, and practices related to pneumococcal infection and vaccination among in the Taif city in KSA.

The aim of the study

To assess the knowledge, attitudes and practices of towards pneumococcal infection and vaccination patients who visit the health centers in 2018.

2. MATERIALS AND METHODS

Research Design

A cross sectional study will conduct who resident in primary health centers Taif during 25 of august 2018 till 6 of December, 2018.

Sampling technique

The sampling technique will be used the simple random matching the inclusion criteria and exclusion criteria.

Sample size

Using EPI info version 7, the study sample size will be as: source population size will conduct on a convenience sample of 101 residents in Taif city patients who visit the primary health centers in 2018 Taif.

The study population

Consists of patients who visit the primary health centers in 2018 at Taif Al-Hada, Saudi Arabia: including 101 patients

Inclusion criteria

- Willing and able to participate in the study
- Residency in Tife city
- over 18 years of age

Exclusion criteria

- Residency outside Tife city.
- No specific exclusion criteria
- < 18
- Patients refusing sign Informed consent.

Data collection method

To collect data knowledge, attitude and practice (KAP) structured questionnaire was used. It was developed by the researcher after reviewing of current national and international related literature. It composed of 33 questions. This included the following parts:

Part one: biosocial demographic characteristics: as name, age, sex, years of education, area of residence, and presence of chronic diseases as diabetic mellitus

Part two: this part including questions to assess the knowledge, attitude and practices regarding pneumococcus and vaccination such as signs and symptoms of pneumococcus, mode of transmission, methods of prevention, high risk groups, and line of treatment. Questions concerning attitude and practices included Patients feeling, and community reaction toward people with pneumococcus infection, and sources of information about pneumococcus infection.

Following a short briefing about the study, informed consent will obtain from each participant who agreed to join the survey. The study tool was developed by the researcher and checked for validity and reliability using Cronbush's alpha ($r=0.76$). Pilot study was done on 10 Patients to check and ensure the clarity, applicability and feasibility of tools. Patients completed the surveys themselves; however, research team members helped those who were unable to complete the questionnaires themselves.

Data management and statistical analysis

After data collection, it was coded and entered to the computer. The data was checked for correction of any errors during data entry. SPSS program version 23.0 was used for data presentation (tables, graphs and mathematical presentations) and statistical analysis. Number and percent were used for presenting qualitative variables. Mean and mean percent were carried out for the quantitative variables. The 0.05% level of significance was used. Fissure Exact test was done to determine the correlations. Correlations were calculated as Less than or equal 0.05 was considered significant correlation and Less than or equal 0.01 was considered highly significant correlation.

Scoring system for level of knowledge, attitude and practices:

- satisfactory: 70-99
- fair: 50-69
- unsatisfactory: less than 50

Ethical consideration

Necessary approval was got by the Regional ethical committee and the Research Ethics Committee prior to the study. A written consent will be obtained from Taif administration. The aim of the study will be explained to them. Feedback about the results will be sent to these organizations. Consent will be obtained from each participant to voluntarily participate in the study. Data will be treated confidentially and will be used only for the purpose of research.

Expected study limitation

We expect to meet a situation where some participants may not be so willing to respond fully to the questionnaire's items, jeopardizing the study's response rate, and hence the results' generalizability. On our part, we will first explain to participants the importance of the study, clarify to them the exact questionnaire aim and contents, in order to remove their worries and assure confidentiality. Such action may well enhance their responses to the questionnaire's encompassed questions. Short time and limited resources are other limitations.

Budget

Self-funded

3. RESULTS

Age

Regarding socio demographic characteristics, this table 1 shows that the the majority of participant age period of more than (60) years were constitutes (36.4%) while the age period of (50-60) years were constitutes (35.2%) while Range (27-97) and Mean±SD (54.49±10.866).

Gender

The majority of our study are male gender were constitutes (60.8%) while female were constitutes (39.13)

Table 1 frequency distribution of participants according to socio

	N	%
Age		
<40	49	11.84
40-50	68	16.43
50-60	146	35.27
>60	151	36.47
Range	27- 97	
Mean±SD	54.49±10.866	
Gender		
Male	252	60.87
Female	162	39.13
Residence		
Big City	226	54.59
Small city	45	10.87
Village	119	28.74
Rural	24	5.80
Chronic diseases?		

Non	201	48.55
Diabetes	49	11.84
HT	61	14.73
Chronic Infectious diseases (HIV-Hib ...)	4	0.97
Renal failure	3	0.72
Cardiovascular diseases	14	3.38
CNS disorder	1	0.24
Mobility disorder	3	0.72
GIT diseases	7	1.69
Multible	71	17.15

Chronic diseases

The majority of our participants not have chronic diseases were constitutes (48.55%) while HTwere constitutes (14.73) thin Diabetes mellitus (DM) were constitutes (11.84%) followed by Hypertension (HTN) were constitutes (22.10%) while Cardiovascular diseases were constitutes (3.38%).

Table 2 frequency distribution of the participants' knowledge about pneumococcal infection

	N	%
What are the signs and symptoms of pneumococcal virus		
1-Fever and chills	131	31.64
2-Cough	221	53.38
3-Cough that lasts longer than 3 weeks	9	2.17
4-Coughing up blood	14	3.38
5-Severe headache	44	10.63
6-Nausea	26	6.28
7-Weight loss	19	4.59
8-Fever	119	28.74
9-Fever without clear cause that lasts more than 7 days	5	1.21
10-Chest pain	60	14.49
11-Shortness of breath	117	28.26
12-Ongoing fatigue	37	8.94
13-Do not know	128	30.92
How can a person get pneumococcal virus?		
1. Through handshakes	72	17.39
2. Through the air when a person with corona virus coughs or sneezes	233	56.28
3. Through sharing dishes	51	12.32
4. Through eating from the same plate	33	7.97
5. Through touching items in public places (doorknobs, handles in transportation, etc.)	61	14.73
6. Do not know	136	32.85
How can a person prevent getting pneumococcal virus?		
1. Vaccination	78	18.84
2. prophylactic antibiotic	22	5.31

	N	%
3. Avoid shaking hands	54	13.04
4. Covering mouth and nose when coughing or sneezing	205	49.52
5. Washing hands after touching items in public places	122	29.47
6. Closing windows at home	16	3.86
7. Through good nutrition	20	4.83
8. By praying	9	2.17
9. Do not know	122	29.47
In your opinion, who can be infected with pneumococcal virus?		
1. Anybody	213	51.45
2. Only poor people	35	8.45
3. Only homeless people	9	2.17
4. Only alcoholics	7	1.69
5. Only drug users	11	2.66
6. Only people living with HIV/AIDS	38	9.18
7. Only people who have been in prison	6	1.45
8. Do not know	137	33.09
Can pneumococcal virus be cured?		
Yes	347	83.82
No	67	16.18
How can someone with pneumococcal virus be cured?		
1. Herbal remedies	46	11.11
2. Home rest without medicine	18	4.35
3. Praying	7	1.69
4. Specific drugs given by health centre	230	55.56
5. DOTS	16	3.86
6. Do not know	122	29.47
Do you feel well informed about pneumococcus?		
Yes	131	31.64
No	283	68.36
Who would you talk to about your illness if you had pneumococcal virus?		
1. Doctor or other medical worker	357	86.23
2. Spouse	96	23.19
3. Parent	56	13.53
4. Child(ren)	91	21.98
5. Other family member	59	14.25
6. Close friend	33	7.97
7. No one	8	1.93
What would you do if you thought you had symptoms of pneumococcus?		
Go to health facility	390	94.20
Go to pharmacy	9	2.17
Got to traditional healer	6	1.45
Pursue other self-treatment options (herbs, etc.)	9	2.17

What are the signs and symptoms of pneumococcal virus?

This table 2 shows that the highest proportion of participant reported cough (53.3%), fever and chills (31.6%), shortness of breath (28.2%) as the signs and symptoms of pneumococcal infection, while one third of participants don't know the signs and symptoms.

How can a person get pneumococcal virus

The participants don't know the pneumococcal infection mode of transmission were constitutes (32.8%) and approximately half patient reported that the virus can be transmitting through the air when a person with corona virus coughs or sneezes.

The highest proportion of participants reported that covering mouth and nose when coughing or sneezing (56.28%), while Through handshakes were constitutes (17.3%) and touching items in public places were constitutes (14,7%) and Through sharing dishes were constitutes (12.3%) .

How can a person prevent getting pneumococcus virus?

Vaccination (18.8%) can prevent exposure to virus. While (29.4%) don't know how a person can prevent getting pneumococcal virus while washing hands after touching items in public places were constitutes (29.4%).

In your opinion, who can be infected with pneumococcus virus?

In addition, the highest percentage of participant agreed that anyone can be infected with pneumococcal virus (51.4%) while Do not know were constitutes (33.09%).

Can pneumococcal virus be cured?

The majority of participant answer (YES) pneumococcal virus can be cured were constitutes (83%), while (NO) were constitutes (16.18%).

How can someone with pneumococcus virus be cured?

The majority of participant answer Specific drugs given by health centre were constitutes (55.56%) while Do not know were constitutes (29.47%).

Do you feel well informed about pneumococcus

The majority of participant answer (NO) were constitutes (68.36) while (YES) were constitutes (31.64%).

Who would you talk to about your illness if you had pneumococcus virus

The majority of participant report doctor or other medical worker if they had infection were constitutes (86.2%).

What would you do if you thought you had symptoms of pneumococcus

The majority of participant report to health care facility (94.2%).

Table 3 frequency distribution of participants' attitudes regarding pneumococcus infection

	N	%
Which statement is closest to you're feeling about people with pneumococcus?		
I feel compassion and desire to help	206	49.76
I feel compassion but I tend to stay away from these people	123	29.71
It is their problem and I cannot get TB	3	0.72
I fear them because they may infect me	52	12.56
I have no particular feeling	30	7.25
In your community, how is a person who has pneumococcus virus usually regarded/treated?		
Most people reject him or her	83	20.05
Most people are friendly, but they generally try to avoid him or her	117	28.26
The community mostly supports and helps him or her	214	51.69
Do you think that HIV positive people should be concerned about pneumococcus?		
Yes	296	71.50
No	118	29

Why YEs?		
Person with HIV is more likely to develop corona virus	260	87.84
Do not know	36	12.16
Why not?		
Person with HIV is not more likely than	33	27.97
Do not know	85	72.03
Do you wish you could get more information about pneumococcus?		
Yes	370	89.37
No	44	10.63
What would be your reaction if you were found out that you have pneumococcus?		
Fear	193	46.62
Surprise	34	8.21
Shame	17	4.11
Embarrassment	64	15.46
Sadness or hopelessness	106	25.60
In your community, how is a person who has pneumococcus usually regarded/treated?		
Most people reject him or her	90	21.74
Most people are friendly, but they generally try to avoid him or her	120	28.99
In your community, how is a person who has pneumococcus usually regarded/treated	204	49.28

Which statement is closest to you're feeling about people with pneumococcus

Regarding the participants feeling about people with Pneumococcus virus, this table 3 shows that less than half of them were constitutes (49.2%) feel compassion , while tend to stay away from these people were constitutes (29.71%).

In your community, how is a person who has pneumococcus virus usually regarded/treated?

Concerning the participants' community treatment for person who has Pneumococcus virus, more than half of them were constitutes (51.69%) reported that the community mostly supports and helps him or her while Most people are friendly, but they generally try to avoid him or her were constitutes (28.26%).

Do you think that HIV positive people should be concerned about pneumococcus?

Three quarters of participants (71.5%) think that that HIV positive people should be concerned about Pneumococcus virus.

Do you wish you could get more information about pneumococcus?

The majority of them (89.37%) wish to get more information about Pneumococcus virus.

What would be your reaction if you were found out that you have pneumococcus?

Less than half of them (46.6%) reported that they may feel fear if they were found out that having pneumococcus virus, while Sadness or hopelessness were constitutes (25.60%).

In your community, how is a person who has pneumococcus usually regarded/treated

The majority of participants in your community, how is a person who has pneumococcus usually regarded/treated were constitutes (49.28%) while Most people are friendly, but they generally try to avoid him or her were constitutes (28.99%).

Table 4 frequency distribution of the sources of information about Pneumococcus

	N	%
What are the sources of information on corona virus?		
1. Newspapers and magazines	88	21.26
2. Radio	58	14.01

3. TV	227	54.83
4. Billboards	3	0.72
5. Brochures, posters and other printed materials	20	4.83
6. Health workers	110	26.57
7. Family, friends, neighbours and colleagues	106	25.60
8. Religious leaders	4	0.97
9. Teachers	4	0.97

About (54.8%, 26.5%, 25.6%) of participants reported that their sources of knowledge are TV, Health workers and Family, friends, neighbors and colleagues.

Table 5 distribution of participant's total knowledge and attitude regarding Pneumococcus

	N	%
Knowledge		
Weak	340	82.13
Average	72	17.39
High	2	0.48
Range	0-19.	
Mean±SD	6.717±3.104	
Attitude		
Negative	186	44.93
Positive	228	55.07
Range	0-6.	
Mean±SD	3.401±1.225	

This tables 4 & 5 and figures 1, 2 & 3 shows the majority of participants (82.1%) have a weak knowledge where Range (0-19) and Mean±SD6.717±3.104

While more than half of them (55.07%) have a positive attitude about the disease were Range (0-6) and Mean±SD (3.401±1.225).

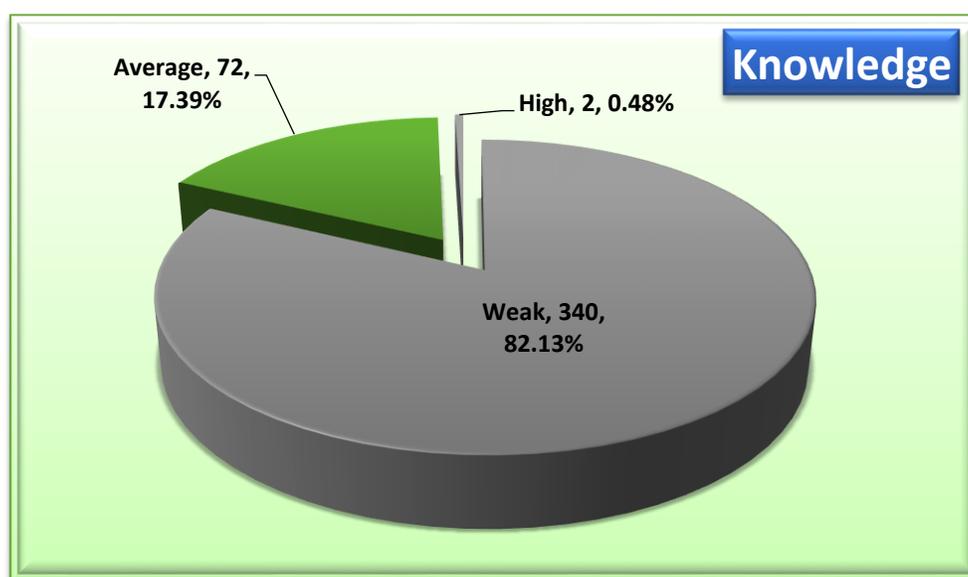


Figure 1 distribution of participant's total knowledge regarding Pneumococcus

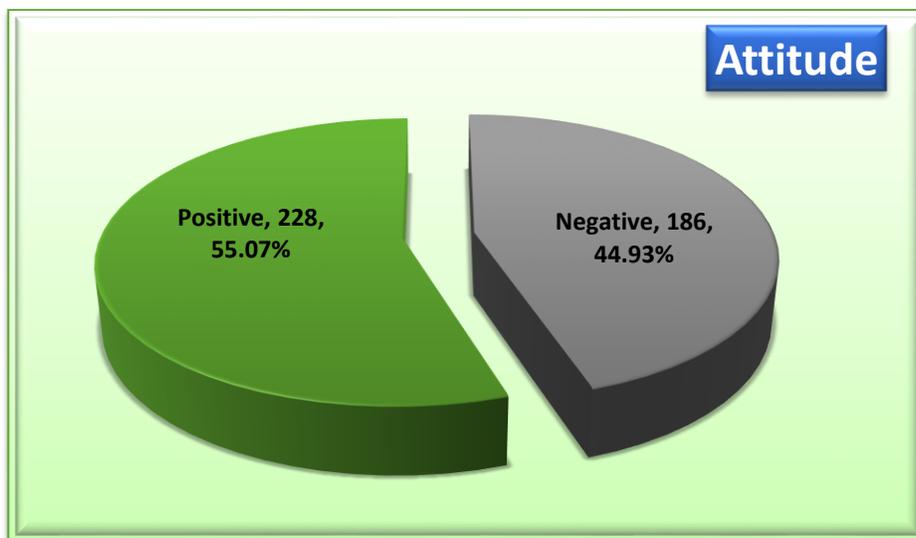


Figure 2 distribution of participant's attitude regarding Pneumococcus regarding Pneumococcus

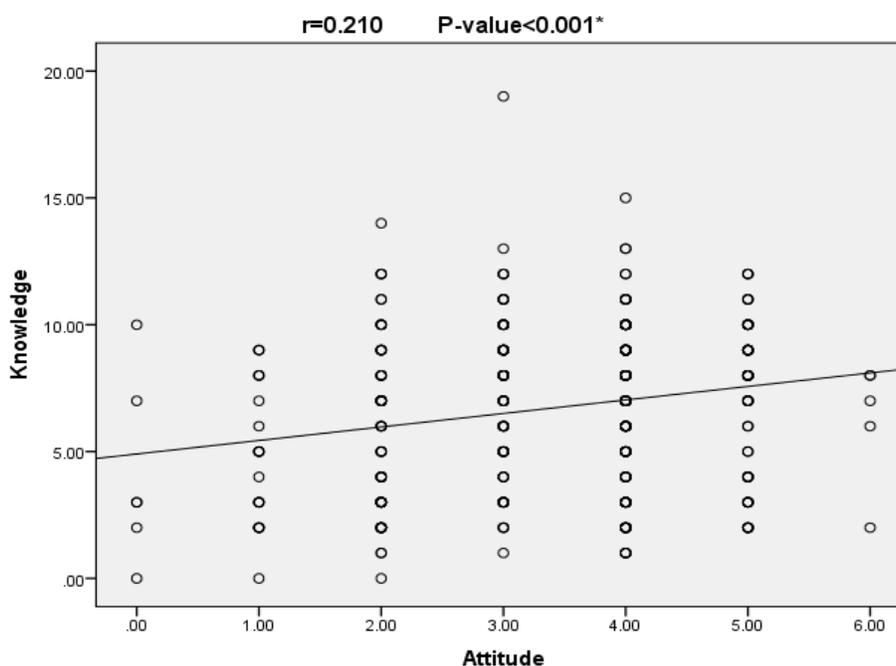


Figure 3 Negative correlation between total knowledge and attitude regarding Pneumococcus

That is a significant positive correlation between the knowledge and attitude were $r= 0.210$ and $p\text{-value} <0.001$

Table 6 correlation between knowledge and participants socio demographic characteristics

Demographic data		N	Knowledge			F or T	ANOVA or T-test	
			Mean	±	SD		Test value	P-value
Age	<40	49	6.796	±	3.021	F	2.144	0.094
	40-50	68	7.471	±	2.794			
	50-60	146	6.740	±	3.197			
	>60	151	6.331	±	3.136			
Sex	Male	252	6.754	±	3.106	T	0.299	0.765

	Female	162	6.660	±	3.111			
Residence	Big City	226	7.270	±	3.006	F	5.651	0.001*
	Small city	45	5.889	±	3.062			
	Village	119	6.025	±	2.907			
	Rural	24	6.500	±	4.065			
Correlation between Years of Education and Knowledge	r	0.210						
	P-value	<0.001*						

This table 6 and figure 4 shows a significant correlation between level of knowledge and education (P= 0.001).

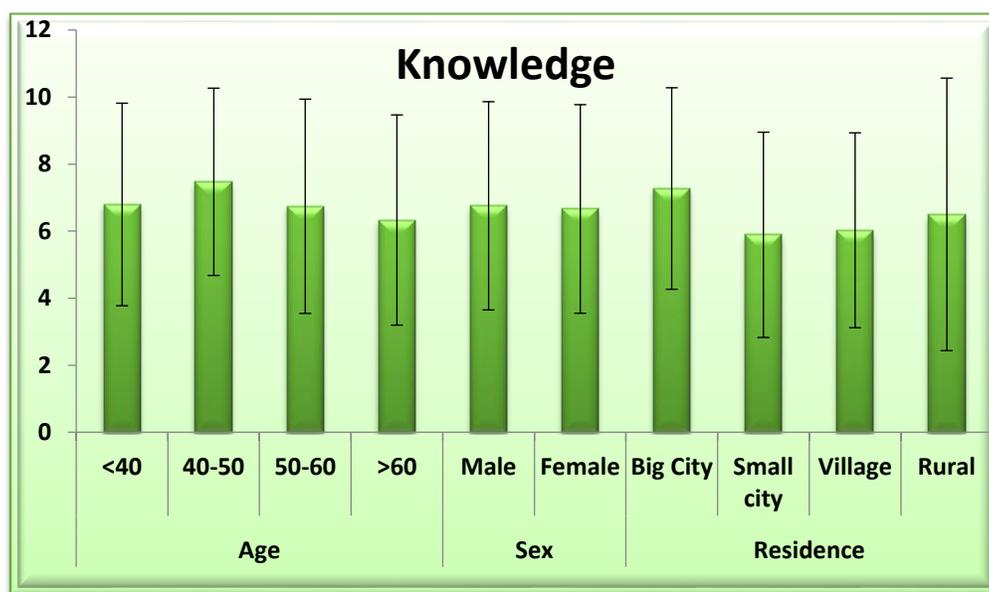


Figure 4 correlations between knowledge and participants socio demographic characteristics

Table 7 correlation between attitude and participants socio demographic characteristics

Demographic data	N	Attitude			F or T	ANOVA or T-test		
		Mean	±	SD		Test value	P-value	
Age	<40	49	3.102	±	1.342	F	1.251	0.291
	40-50	68	3.353	±	1.243			
	50-60	146	3.459	±	1.139			
	>60	151	3.464	±	1.253			
Sex	Male	252	3.333	±	1.259	T	-1.403	0.161
	Female	162	3.506	±	1.165			
Residence	Big City	226	3.398	±	1.182	F	1.068	0.362
	Small city	45	3.533	±	1.342			
	Village	119	3.437	±	1.246			
	Rural	24	3.000	±	1.285			
Correlation between Years of Education and attitude	r	0.285						
	P-value	<0.001*						

This table 7 and figure 5 shows a significant correlation between attitude and education (P= 0.001).

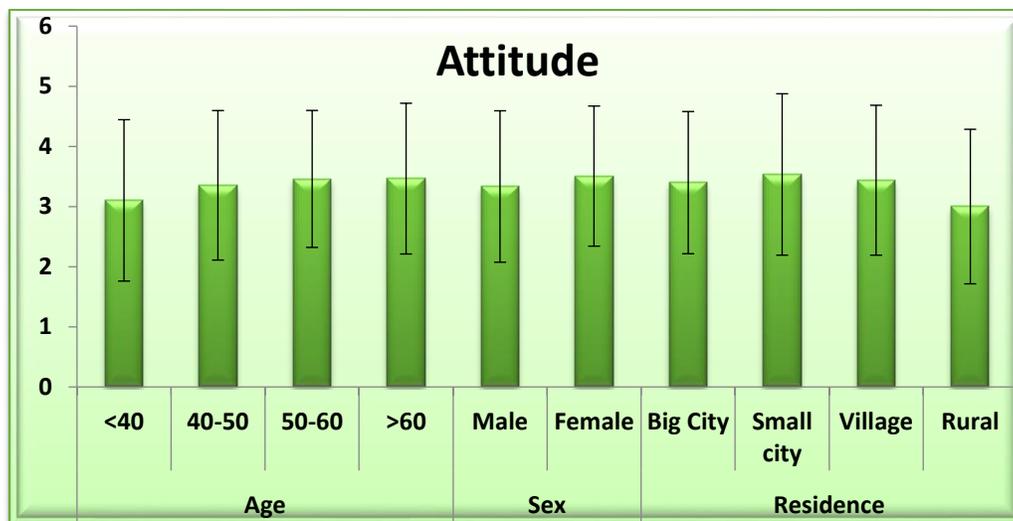


Figure 5 correlations between attitude and participants socio demographic characteristics

4. DISCUSSION

Numerous studies have shown a high prevalence of respiratory symptoms among patients. Respiratory viruses, especially influenza virus, rhinovirus and *Streptococcus pneumoniae* infections are the most common cause of acute. The lower pneumococcal acquisition might be caused by several reasons. One of the possible reasons be lack of knowledge about the disease; causes, mode of transmission, clinical manifestation, high risk groups, ways of prevention and line of treatment, in addition to negative attitude toward the disease. Therefore, this study aimed to assess knowledge and attitude of the patient about pneumococcal infection (El-Sheikh et al., 1998). The Saudi Thoracic Society Guidelines for Pneumococcal (2016) that a significant positive correlation between the knowledge and attitude were $r= 0.210$ and $p\text{-value} < 0.001$ (Shows the detailed data table (3)).

The results of the study revealed weak level of knowledge and positive attitude toward pneumococcal infection with a significant correlation between knowledge, attitude regarding pneumococcal infection and education. That a significant positive correlation between the knowledge and attitude were $r= 0.210$ and $p\text{-value} < 0.001$ (Shows the detailed data table (5)).

This result was in line with Zhang et al. (2016) who conduct a study entitled with vaccination knowledge, attitude and practice among Chinese travelers who visit travel clinics in Preparation for international travel and found a low level of knowledge regarding vaccination as a protective measure among participants Zhang *et al.* (2016). The results are also supported by Dumyati and Balubaid (2018) who found that there were unsatisfactory level of knowledge, practice an attitude of patient about Pneumococcal Infection with a correlation between knowledge and education, area of residence. They recommend that doctors must teach and inform all the participants about how to deal with any infectious disease, particularly pneumonia Dumyati, and Balubaid (2018) a significant correlation between level of knowledge and education ($P= 0.001$) shows the detailed data table (6) & a significant correlation between attitude and education ($P= 0.001$) Shows the detailed data table (7) Sahin et al. (2015). Study results were consistent with the study finding. They revealed that half of the participants realized the importance of protective measures against respiratory infections such as hand washing, mask use and avoiding contact with sick people Sahin et al. (2015).

5. CONCLUSION

There is conjointly the danger of transmission of *S. pneumoniae* within the population together with antibiotic resistant strains between and their potential global unfolds. The country conjointly has distinctive challenges display by prone population to IPD thanks to folks with hemoglobinopathies, younger age teams with chronic conditions, and growing drawback of antibiotic resistance. Since the medicine of pneumococcal illness is continually ever-changing, with a rise in non-vaccine pneumococcal serotypes, vaccination policies on the effectiveness and quality of vaccines need regular revision. As a part of the Saudi body part Society (STS) commitment to market the simplest practices within the field of metabolism diseases, *S. pneumoniae* infections and the aim of the present study is to assess the Knowledge attitude and practices about pneumococcal infection and vaccination patients who visit the primary health centers in 2018 at Taif in Saudi Arabia at urban center in Kingdom of Saudi Arabia. We tend to advocate vaccination against pneumococcal infections for all youngsters. Barriers to life-long vaccination include organizational barriers,

healthcare provider-related barriers, patient-related barriers, healthcare system-related barriers, and socioeconomic factors. Patient-related barriers include inadequate patient knowledge and awareness, negative perceptions and attitudes, and low health literacy. Patient and physician attitudes about vaccination may be important determinants of adult VCRs. The most important barriers to adult vaccination are misperceptions and low awareness of patients, and inadequate knowledge and negative attitudes of physicians. Many adults are unaware of which vaccinations they need and when they should receive them. People's awareness about protecting their own health is also important in achieving the targeted level of adult immunization. The attitude and behavior of individuals are influenced by their health literacy, and limited health literacy may cause misperceptions and noncompliance.

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