



## RESEARCH ARTICLE

### AWARENESS OF OPPORTUNISTIC INFECTION OF AIDS – THE HIDDEN ASSAILANT

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#### ABSTRACT

**Aim:** To assess the knowledge and create awareness of opportunistic infection of aids in the general population of Chennai.

**Objective:** To assess the knowledge regarding the symptoms, mode of transmission, causes, and prevention and control measures associated with opportunistic infection of aids in the general population of Chennai .also to study the relationship of level of awareness between age, sex and educational status.

**Background:** People with healthy immune systems can be exposed to certain viruses, bacteria, or parasites and have no reaction to them—but people living with HIV /aids can face serious health threats from “opportunistic” infections (Opportunistic infections). Recent studies have highlighted the importance of increasing awareness of opportunistic infection of aids and reducing the associated stigmas to reduce the incidence of aids and enable earlier diagnosis and effective treatment. This study is done to assess the level of knowledge of the general populace, about various aspects of opportunistic infection of aids and to assess the relationship of the level of awareness with age, sex and educational qualification of the participants.

**Reason:** The reason is to study the level of knowledge of the general populace, about various aspects of opportunistic infection of aids, and to assess the relationship of the level of awareness to age, sex and educational qualification of the participants

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#### INTRODUCTION

Since the early sighting of cases of a previously rare disease, pneumocystis carinii pneumonia, among homosexual men in los Angeles in 1981, acquired immunodeficiency syndrome (aids) has expanded to become a worldwide pandemic, threatening not only the health of millions, but eroding the socioeconomic stability of many countries, particularly in sub-Saharan Africa. In the past two decades, almost 22 million people worldwide have died of aids, and 4 in every 10 Indian is infected with human immunodeficiency virus type 1 (HIV-1) (UNAIDS, 2014. Our knowledge of the biology of HIV infection has changed radically from a model of virological latency to one of continuous active HIV replication throughout infection (Ho *et al*, 1995).opportunistic infections include Cryptococci meningitis, toxoplasmosis, pcp, a type of pneumonia, oesophageal candidiasis and certain cancers, including kaposi’s sarcoma (Evans-jones *et al.*, 2010). Infectious complications are the most common cause of death in patients with acquired immunodeficiency syndrome (aids). Many of these pathogens do not cause disease in a healthy host that has a normal immune system.

However, a compromised immune system, a penetrating injury, or a lack of competition from normal commensals presents an opportunity for the pathogen to infect (Mastromarino, 2013) Opportunistic infections associated with defects in both t and B lymphocyte function have been observed (Grant, 1986). The introduction of highly active antiretroviral therapy (HAART) regimes in the mid-1990s has resulted in a 50% decline in aids death rate, decreased maternal infant transmission rates, reductions in incidence rates of opportunistic infections (Calabrese, 2007). Cotrimoxazole is a medicine used to prevent infections, and it is commonly prescribed to people living with HIV who have a low cd4 count. WHO recommends cotrimoxazole for adults with HIV who have a cd4 count below 350, or who are ill because of HIV, until they are on stable HIV treatment. Also all adults with HIV in areas where malaria or severe bacterial infections are common adults with HIV who also have active tuberculosis (TB) (World health organization). The percentage of HIV-infected persons with various OPPORTUNISTIC INFECTIONS during a specified period have been documented. However, few studies have reported the occurrence of each aids-defining opportunistic infections during the course of aids. Such analyses are helpful for determining the preventive medications and treatments needed for HIV-infected persons (Jones *et al.*, 1999).

This study was done to create and assess the level of knowledge in the general population about the opportunistic infections that accompany aids.

## MATERIALS AND METHODS

A self formulated questionnaire containing about 15 questions was distributed to the general population in Chennai. The participants were of different age groups, ranging from 18 to above 60 years. The questionnaire was distributed to a population of 100. The questionnaire was prepared using survey planet -a survey creating website, which generated a link which was distributed using social media. The age, sex and educational qualification of the participant was also recorded. The results were recorded and were accordingly analyzed using Microsoft excel. The questionnaire distributed is attached herewith.

### Questionnaire:

Age:

Sex:

Educational qualification:

1. Do you know what an STD is?

1) Yes 2) no

2. Do you know what aids is?

1) Yes 2) no

3. Did you know that aids causes the effected persons immune system to collapse?

1) Yes 2) no

4. An infection that takes advantage of your weakened immune system is called??

1) sub clinical infection 2) clinical infection 3) primary infection 4) opportunistic infection

5. Did you know that aids/ HIV has three stages and only the third and most severe stage is called aids and is the only stage in which Opportunistic infections occur ?

1) Yes 2) no

6. Did you know that a person is usually only diagnosed if he/she has both HIV and an opportunistic infections ?

1) Yes 2) no

7. Did you know that Opportunistic infections can either be systemic or localized?

1) Yes 2) no

8. Do you know what cd4 cell are?

1) Yes 2) no

9. Did you know that cd4 cells or t- helper cell level determines the progression of HIV?

1) Yes 2) no

10. Did you know that only patients with a cd4 cell count of less than 500cell/mm<sup>3</sup> are at risk of opportunistic infections ?

1) Yes 2) no

11. Did you know that there are more than 20 Opportunistic infections that have been listed by the cdc that are considered as aids- defining conditions, among it tuberculosis and cancer?

1) Yes 2) no

12. Most common organ that gets effected by Opportunistic infections is?

1) Lungs 2) liver 3) heart 4) genital organs 5)

13. Most common type of cancer that accompanies aids in the name of Opportunistic infections ?

1) Cervical cancer 2) angiosarcoma 3) mouth cancer. 4) Lung cancer.

14. Did you know that the main goal of HIV treatment is actually trying to lower the risk of getting Opportunistic infections ?

1) Yes 2) no

15. Can grade on a scale of 1 to 10, 1 being the least and 10 the highest on how the above questions helped you gain knowledge in the area of Opportunistic infections ?

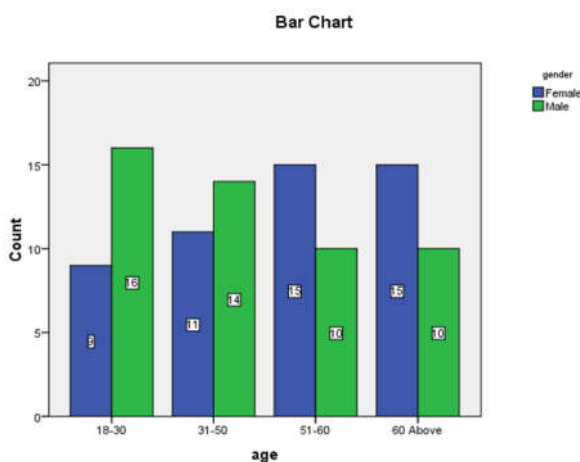


Figure 1. Relationship between age and gender of the respondents and the awareness among them.

## RESULTS

Well aware about the disease aids and more participants from male. And 51-60 and 60 above are female participants are aware of aids. And the diagram shows the same.

### Chi square for independence of attributes

The Chi-Square Test can be used to test of independence between two variables.

That means that it tests whether one variable is independent from another one. In other words, it tests whether or not a statistically significant relationship exists between a dependent and an independent variable.

**HYPOTHESIS**

**H0:** There is no significant association between Age and Gender of respondent.

**H1:** There is significant association between Age and Gender of respondent.

Table 1: Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.320 <sup>a</sup>	3	.229
Likelihood Ratio	4.361	3	.225
Linear-by-Linear Association	3.833	1	.050
N of Valid Cases	100		

Chi-Square Test of Independence: the X<sup>2</sup> value is 4.320 with 3 degree of freedom, which results in a p-value of .229. Since 0.229 is larger than 0.05 we cannot reject the null hypothesis that the two variables are independent, thus we cannot say that Gender and age have an influence on the awareness of the respondents.

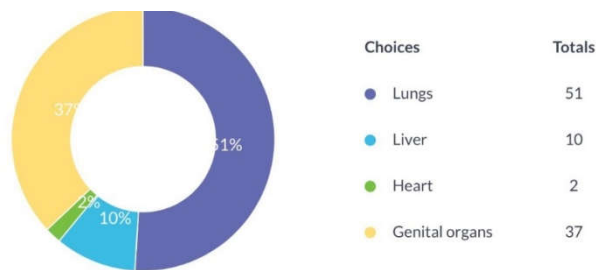


Figure 2. Most common organ that gets effected by opportunistic infections is?

effected organ are the lungs which is right, a majority of them, 37 of 100 respondents think that the genital organs are effected the most.

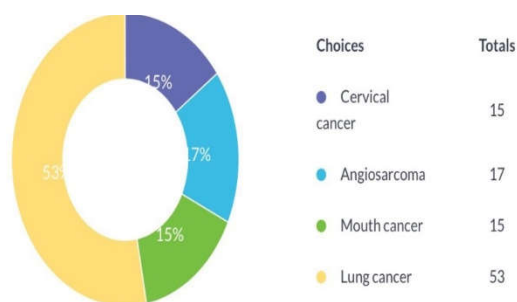


Figure 3. Most common type of cancer that accompanies aids in the name of Opportunistic infections?

More than half, 53 out of 100 respondents, seem to think that lung cancer is the most common type of cancer that accompanies aids.

**DISCUSSION**

In a national multi-centre study (Mortalité 2000). A total of 964 deaths were recorded and 924 cases were available for analysis. Underlying cause of death were AIDS-related (47%), viral hepatitis (11%), non-AIDS cancers (11%), cardiovascular diseases (7%) and others (11%). Among patients who died of AIDS events, 262 (27%) died of at least one opportunistic infection. Compared to patients who died of other causes, patients who died of opportunistic infections were younger and more likely to be infected through heterosexual contact, in poor socioeconomic conditions, migrants, more recently diagnosed for HIV infection, and naive of antiretroviral therapy and opportunistic infection prophylaxis (Buchacz *et al.*, 2008). Opportunistic infection are still a major cause of death in HIV-infected patient, especially among patients recently diagnosed for HIV infection and who do not have access to care, as well as in long term infected patients where prophylaxis should be revisited (Bonnet *et al.*, 2005). Awareness of these opportunistic infection hence needs to be increased for the welfare of the people. Since acquired immunodeficiency syndrome (AIDS) was first recognised 20 years ago, remarkable progress has been made in improving the quality and duration of life for HIV-infected persons in the industrialised world. During the first decade of the epidemic, this improvement occurred because of improved recognition of opportunistic disease processes, improved therapy for acute and chronic complications, and introduction of chemoprophylaxis against key opportunistic pathogens (Kaplan, 2002).

Table 2: Knowledge of HIV/AIDS by gender of respondents

Variables	Gender		Chi-square	
	Female	Male		
1. Do you know what an STD is?	Yes	22	30	0.109
	No	28	20	
2. Do you know what aids is?	Yes	27	45	0.000
	No	23	5	
3. Did you know that aids causes the effected person's immune system to collapse?	Yes	16	25	0.067
	No	34	25	
4. Did you know that aids/ HIV has three stages and Only the third and most severe stage is called aids and is the only stage in which Opportunistic infections occur ?	Yes	21	20	0.839
	No	29	30	
5. Did you know that aids/ HIV has three stages and Only the third and most severe stage is called aids and is the only stage in which Opportunistic infections occur ?	Yes	13	23	0.037
	No	37	27	
6. Did you know that Opportunistic infections can either be systemic or localized?	Yes	11	16	0.260
	No	39	34	
7. Do you know what CD4 cell are?	Yes	14	19	0.288
	No	36	31	
8. Did you know that CD4 cells or T-helper cell level determines the progression of HIV?	Yes	9	20	0.015
	No	41	30	
9. Did you know that only patients with a CD4 cell count of less than 500cells/mm <sup>3</sup> are at risk of OPPORTUNISTIC INFECTIONS?	Yes	17	23	0.221
	No	33	27	
10. Did you know that there are more than 20 Opportunistic infections that have been listed by the CDC that are considered as aids- defining conditions, among it tuberculosis and cancer?	Yes	29	26	0.546
	No	21	24	
11. Did you know that the main goal of HIV treatment is actually trying to lower the risk of getting Opportunistic infections?	Yes	24	26	0.689
	No	26	24	

Results show that most respondents have significant knowledge about aids and male have higher knowledge about aids (p = 0.000). Aids have three stages (p = 0.037), CD4 cells or T- helper cell level determines the progression of HIV (p = 0.015). The table shows that young adult have significantly higher knowledge of HIV/AIDS than the senior citizens. From this figure it can be induced that even though a surprising number, 51 out of 100, of the respondents say that the most

The second decade of the epidemic has witnessed extraordinary progress in developing highly active antiretroviral therapies (HAART) as well as continuing progress in preventing and treating opportunistic infection. HAART has reduced the incidence of opportunistic infection and extended life substantially (Barbosa, 2002). However, certain patients are not ready or able to take HAART, and others have tried HAART regimens but therapy failed. Such patients will benefit from prophylaxis against opportunistic infection. In addition, prophylaxis against specific opportunistic infection continues to provide survival benefits even among persons who are receiving HAART (McNaghten *et al.*, 1999).

There is a striking contrast in the awareness and impact of HIV/AIDS between developed and developing countries. In USA and Europe, about 75 per cent of infected people are aware of their HIV serostatus, whereas about 80-90 per cent of infected people in developing countries, including in India, have never been tested for HIV and remain unaware of their infection (Srirangaraj, ?). In 2017, there seems to be a significant difference in the level of awareness among the people in south India, results show that most respondents have significant knowledge about aids and males have higher knowledge about aids ( $p = 0.000$ ). Aids have three stages ( $p = 0.037$ ), CD4 cells or T-helper cell level determines the progression of HIV ( $p = 0.015$ ). The table shows that young adults have significantly higher knowledge of HIV/AIDS than the senior citizens.

## Conclusion

Opportunistic infections (OIs) continue to cause morbidity and mortality in patients with human immunodeficiency virus (HIV)-1 infection throughout the world. Potent combination antiretroviral therapy (ART) has reduced the incidence of OIs for certain patients with access to care. However, certain patients in the developed and developing world do not have access to care and have OIs. Other patients do not have a sustained response to antiretroviral agents for multiple reasons, including poor adherence, drug toxicities, drug interactions, or initial acquisition of a drug-resistant strain of HIV-1 (Benson, 2014). Awareness about the fatal opportunistic infections in the case of HIV should be spread to the utmost. A high level of alertness is needed at both clinical and laboratory level and routine surveillance studies need to be undertaken. Institutions in India and other developing countries need to be equipped to face the emerging challenge, in the form of updating the present knowledge, by way of education and training of the personnel, acquisition of skills of improved procedures, and their implementation in appropriate settings with adequate administrative support (Srirangaraj).

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