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Highlights

Household Catastrophic Health

Expenditure due to Tuberculosis

Discovering Thoughts, Inventing Future

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Household Catastrophic Health Expenditure Due to Tuberculosis: Analysis from Particularly Vulnerable Tribal Group, Central India

By M Muniyandi, VG Rao, Jyothi Bhat, Rajiv Yadav & RK Sharma
National Institute for Research in Tribal Health, Jabalpur

Abstract- Tuberculosis (TB) is disproportionately affects the most economically disadvantaged strata of society. Many studies have assessed the association between poverty and TB, but only a few have assessed the direct financial burden TB treatment and care can place on households. Patient costs can be catastrophic health expenditure for TB affected households in Particularly Vulnerable Tribal Groups (PVTGs). A survey of pulmonary tuberculosis (PTB) was carried out in Saharia dominated Pohri Block of Shivpuri district of Madhya Pradesh state in central India during the period 2013 to 2014. Of 9964 surveyed, 280 PTB cases identified formed the study population for the present study. Among 280 TB patients identified, 220 (79%) cases interviewed at their residence by trained field investigators after obtaining written informed consent. This study demonstrates the economic burden in terms of direct, indirect and total costs for both diagnosis and treatment. In our sample, majority getting treatment free of costs and those who incurred costs, they faced catastrophic TB care expenditure amounted to 10%, which is the proportion of various costs in relation to annual family income. TB is a major cause of impoverishment, as it puts a heavy burden on the family budget, which can force families to absolute poverty.

Keywords: tuberculosis, economic impact, catastrophic health expenditure, poverty, vulnerable population, tribal group, india.

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Household Catastrophic Health Expenditure Due to Tuberculosis: Analysis from Particularly Vulnerable Tribal Group, Central India

M Muniyandi [α], VG Rao [σ], Jyothi Bhat [ρ], Rajiv Yadav [ω] & RK Sharma [¥]

Abstract- Tuberculosis (TB) is disproportionately affects the most economically disadvantaged strata of society. Many studies have assessed the association between poverty and TB, but only a few have assessed the direct financial burden TB treatment and care can place on households. Patient costs can be catastrophic health expenditure for TB affected households in Particularly Vulnerable Tribal Groups (PVTGs). A survey of pulmonary tuberculosis (PTB) was carried out in Saharia dominated Pohri Block of Shivpuri district of Madhya Pradesh state in central India during the period 2013 to 2014. Of 9964 surveyed, 280 PTB cases identified formed the study population for the present study. Among 280 TB patients identified, 220 (79%) cases interviewed at their residence by trained field investigators after obtaining written informed consent. This study demonstrates the economic burden in terms of direct, indirect and total costs for both diagnosis and treatment. In our sample, majority getting treatment free of costs and those who incurred costs, they faced catastrophic TB care expenditure amounted to 10%, which is the proportion of various costs in relation to annual family income. TB is a major cause of impoverishment, as it puts a heavy burden on the family budget, which can force families to absolute poverty. Our results suggest that policies to decrease direct and indirect TB patient costs are urgently needed to prevent chances of catastrophic payments to PVTGs. Also a high priority should be given to research that focuses on economic effects in different kind, in different time, in particular, among low-income groups.

Keywords: tuberculosis, economic impact, catastrophic health expenditure, poverty, vulnerable population, tribal group, india.

I. Introduction

Health is one of the most important components of an effective poverty reduction strategy. Since health can increase productivity and household income, while poor health is likely to reduce output. Health improvements can provide poor households with the opportunity to escape poverty. However, use of health services is critical with a view to out-of-pocket (OOP) payments and it is the primary means of financing healthcare in many low-income Asian countries. OOP payments can results in households facing catastrophic health spending, lead to impoverishment, and financial risk protection measures are missing. Globally it is estimated that 150 million people suffer financial catastrophe each year due to health care payments and about 100 million are pushed into poverty because of OOP payments (Xu et al. 2007). Protecting households from catastrophic health care costs is a desirable objective of health systems worldwide. The WHO call for universal health coverage emphasized the need to protect households from catastrophic medical expenses and impoverishment arising from seeking health care.

TB is an airborne infectious disease thought to infect almost one-third of the world's population. It commonly manifests as an infection of the lungs, usually with symptoms of coughing, weight loss and other constitutional symptoms. Individuals suffering from TB are often in their economically most productive age, which poses a significant economic burden on the household. Poor people have longer pathways to care and costs of accessing care are generally higher before than after diagnosis (Nhlema et al. 2003; Rajeswari et al. 1999). Evidence indicates that the damaging effects of TB are catastrophic to those who were relatively poor or marginalized before being infected with TB and subsequently pushes the income insolvent into poverty (Croft et al. 1998; Jackson et al. 2006; Zhang et al. 2007). TB is a chronic disease requiring long duration (6-8 months) of treatment make the poor patients vulnerable, deprived and locks them in the poverty stricken condition (Nhlema et al. 2003; Hossain et al. 2012). Thus poverty and TB are locked in a vicious cycle, as one triggers the other. The Directly Observed Treatment Short course (DOTS) strategy is cost-effective strategy both from provider and patient point of view against historical controls (Burman et al. 1997; Dholakia 1997; Floyd et al. 1997; Sawert et al. 1997; Wilkinson et al. 1997). Key components of the DOTS is that patient is VIP, programme's responsibility to cure them, each dose of anti-tuberculosis drugs should be administered to patients under the supervision of a DOT provider, either from the community or the health system, according to patient's convenience, so that patients do not lose wages or incur transportation charges for treatment under the programme (Khatri et al. 2002). This strategy has been successful in reducing costs to patients, death rates 38/100000/per year in 1990 to

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22/100000/per year in 2012 and increasing cure rates (Central TB Division 2014).

TB disproportionately affects the poor people and TB control programs therefore need to ensure that the economically and socially disadvantaged groups do not face barriers that keep them from seeking treatment. It was estimated that on an average, 3-4 months of work time are lost if an adult has TB, resulting in a loss of about 20-30% of annual household income (Rajeswari et al. 1999). Relative costs for poor people as a percentage of their income is much higher than for non-poor patients, although aggregate real costs may be smaller (Nhlema et al. 2003). India has a high concentration of indigenous tribal population constitutes 8.6% of the total population of the country (Census 2011). As many as 705 groups are identified as tribal across 30 states, 75 have been identified as Particularly Vulnerable Tribal Groups (PVTGs) and Saharia population in Madhya Pradesh is one among them. It was reported that high magnitude of TB among Saharia tribe (1518/100000) (Chakma et al. 1996; Rao et al. 2010). Any development programme initiated by government of India will take time to reach this segment with limited access to health care services due to isolation, low social status and weaker economic position. TB programme therefore need to ensure that the economically and socially disadvantaged groups do not face barriers that keep them from seeking treatment. Hence, studies on patient costs towards costs of accessing care before than after diagnosis are needed particularly among most vulnerable population. Therefore, we undertook a study to estimate the OOP expenditure (diagnosis and treatment) to Saharia PVTG on account of TB in India. In this paper, we present the results of our study in terms catastrophic health spending through direct medical, direct non-medical, indirect and total costs.

II. Methodology

a) Setting

The areas of habitation of Saharia population in Madhya Pradesh are Gwalior, Datia, Morena, Sheopur, Bhind, Shivpuri, Ashoknagar and Guna. This study was carried out in Shivpuri, district considering the operational feasibility, rapport with community and willingness to support by district authorities. Community survey done among Saharias in these areas by National Institute for Research in Tribal Health (NIRT) showed most of them were labourers and annual family income of Rs <10000. Majority was illiterate and they resided in Kachcha houses/huts with no separate kitchen in houses.

b) Study area

A survey of pulmonary tuberculosis (PTB) was carried out in f Saharia dominated Pohri Block of Shivpuri district in Chambal Division of Madhya Pradesh during the period 2013 to 2014. The same area was selected for this study.

c) Study population

All individuals aged 15 years and above were screened for PTB by chest symptoms such as persistent cough for two weeks or more; chest pain for one month or more; fever for one month or more; and haemoptysis anytime in last 6 months. All symptomatics were investigated by sputum smear and culture examinations. All the bacillary cases detected from the survey formed the study population.

d) Data collection

Semi-structured, pre-coded, pre-tested questionnaire was used for data collection. The interviews were conducted at home in their local language (Hindi) by trained field investigators. The interview included household identification, demographic and socio-economic characteristics of respondents. In addition, data on various costs such as direct medical (fess, investigations, drugs); non-medical costs like travel and special food for patient and escort; and indirect costs due to work absenteeism and loss of income were also collected. The interview team was supervised by trained supervisors during data collection. Costs data were validated throughout the interview by repeated questioning and cross checked with the prevailing rates of doctor's consultation fees, costs for investigations, and market price of drugs, medical bills wherever possible. All the filled forms sent to NIRTH to check for correctness and completeness, any incomplete forms sent back to field for corrections within 15 days.

e) Definitions used

Information about the costs was ascertain for full course of treatment of newly diagnosed pulmonary TB patients, classified as category one as per Revised National Tuberculosis Control Programme (RNTCP) guidelines. All costs were calculated period starting from the moment of onset of symptoms up to the completion of treatment which included cost for diagnosis and treatment. Total cost covered expenditure incurred under direct and indirect costs (The Tuberculosis Coalition for Technical Assistance) for 6-8 months of treatment. All these patients had taken treatment in government hospitals where the investigations and the medicines were offered free of costs for TB treatment. However they had to spend for travel etc., the distribution of costs is uneven and we are of the opinion that this variation is expected from all economic data such as income and expenditure. Further we classified the costs into nil cost, those who spent and mean, Standard Deviation, median, range was calculated among those who incurred expenditures. The cost was calculated in terms of Indian rupees and US dollars (exchange rate at the time of writing: $1 US =Rs. 60).

i. *Direct patient costs*

Direct patient costs included all OOP expenditures of patients that were attributable to their illness. Consultation fees and money spent on investigations and drugs were classified as medical costs. Money spent for transportation to health facilities and costs of food bought during waiting time at the health facility. These costs were assessed both the patient as well as persons accompanying the patient. These costs classified as non-medical costs.

ii. *Indirect patient costs*

Indirect patient costs refer to the costs associated with work absenteeism and loss of wages due to illness. These costs included visits to the health facilities and hospitalization as well as other work absenteeism and loss of wages due to the inability to work as a result of the illness. In order to quantify the magnitude of loss of income, the number of days absent for work was multiplied by the estimated income of the patient and escort.

iii. *Total cost*

Total cost includes the expenditure incurred pre treatment and during treatment under direct and indirect costs.

iv. *Catastrophic spending*

There is no single accepted definition of catastrophic spending. Some studies assess payments in relation to the budget share (Russell et al. 2004; Pradhan et al. 2002), while others argue that catastrophic spending should be measured in relation to capacity to pay (i.e. household expenditure net of food spending) ((Xu et al. 2006). Nonetheless, all measures suggest that when households spend a large proportion of their budget on health care, they often forego other goods and services, which can have negative implications for living standards (O'Donnell et al. 2008). Often, the choice of the threshold is arbitrary but two commonly used ones are 10% of total income or 40% of non-food income (referred to as capacity to pay) (**Jane et al. 2012**). To capture the burden on these households, a measure of the depth of poverty is needed (Saksena et al. 2014).

v. *Data management and analysis*

Data entry was done by using the Census and Survey Processing System (*CSPro*) software package version 5.0. Data entry format was developed with logical expressions and conditional statements used to minimize the errors in data entry. Data were analysed using Statistical Package for Social Sciences (SPSS/PC version 20.0; SPSS Inc., Chicago, IL, USA) package. In univariate analysis, average (mean) costs were compared and independent t-test was used to compare their demographic and socioeconomic characteristics and tested for statistical significance. A p-value of <0.05 was considered as statistically significant. We reported mean values to allow comparison with other published cost estimates.

vi. *Human subject protection*

This study was approved by the technical advisory committee and Institutional Ethics Committee of NIRTH, ICMR. We interviewed respondents after obtaining voluntary, written informed consent.

III. Results

a) *Source of intake and coverage of study population*

During the period 2013 to 2014, all individuals aged 15 years and above were screened for PTB by chest symptoms such as persistent cough for two weeks or more; chest pain for one month or more; fever for one month or more; and haemoptysis anytime in last 6 months. All symptomatics were investigated by sputum smear and culture examinations. Saharia tribal population surveyed was 9964 and 280 TB cases identified was the source for the present study. Among 280 TB patients identified, 60 (21%) could not be interviewed, 42 moved temporarily, and 18 had expired. The remaining 220 (79%) cases interviewed at their residence (Figure-1).

b) *Profile of study population*

Majority of the patients (81%) belonged to the more than 35 years age group and the study group included 178 (81%) males and females 42 (19%). Most of the patients 185 (84%) were illiterates and 204 (93%) were working as a labour. Based on monthly per-capita income (definition of Planning Commission, Government of India; those per capita income Rs. $\leq$660), patients were grouped into below poverty line and above poverty line. It was found that majority of patients were living below the poverty line. With reference to their living standards, 201 (91%) living in katcha houses, 196 (89%) were single room houses; 212 (96%) don't have separate kitchen and cooking in sleeping room (Table-1). The life style characteristics of patients were 58% smokers and 36% alcohol consumers.

c) *Overall patient costs*

The overall average direct, indirect and total costs to patient with TB are given in Table-2. It was estimated that direct, indirect and total costs were averaged Rs. 1642 (US$ 27.4), Rs. 1882 (US$ 31.4), and Rs. 2466 (US$ 41.1 respectively. Overall direct and indirect costs were almost similar. Proportion of patients incurred indirect costs was slightly higher than the proportion of patients incurred direct costs in both before and after diagnosis of TB. Figure-3 describes the different components of costs. Overall, patients spent more medical costs during shopping for diagnosis like medicines (35%) followed by investigations (15%), and fees (8%). Non-medical costs major portion incurred was due to wage lose (16%).

d) Costs for diagnosis

This was a community survey to find out the TB cases (active case finding), so around 86% of patients dint spent any costs for diagnosis and treatment (Table-2). Remaining patients incurred direct costs towards shopping for diagnosis before the survey averaged mean Rs. 1229; median Rs. 1000 as a direct costs. The average indirect costs was mean Rs. 573; median Rs. 400 and total diagnosis cost was mean Rs. 1469; median Rs. 1000 (Table-2). During diagnosis medical costs was higher than the non-medical costs (Rs. 994 vs Rs. 331).

Overall 45% of TB cases in this community detected through active case finding; they didn't take any action for their symptoms. Remaining 46% approached government health facilities and 9% approached local healers (Table-3). It was also measured the patients perception about the accessing health facilities, majority 40% find difficult to reach health facilities and 31% felt lack of money to approach health facility for diagnosis.

e) Costs for treatment

During the treatment none of the patient incurred any direct medical costs. The average direct non-medical cost was incurred only 11% of patients and it was mean Rs. 579 (US$ 9.65). Indirect costs was incurred only 5% of patients, it was estimated to be mean Rs. 1718 (US$ 28.6). Total treatment costs were also incurred only 11% and it was mean Rs. 1335 (US$ 22.25). It was observed that indirect treatment costs were higher than the direct costs (Rs. 579 vs rs. 1718).

Those patients didn't not spent any costs during treatment reported that majority (61%) of patients taken treatment under the community DOT providers; 65% of patients DOT providers are living in the same village; 46% perceived that DOT is convenient to them; and 50% reported that they are satisfied with their DOT providers. However, 34% of patients returned from DOT centre more than once without medicine due to non-availability of DOT providers.

f) Catastrophic expenditure

In our sample, majority getting treatment free of costs and those who incurred costs, they faced catastrophic TB care expenditure amounted to 10%, which is the proportion of various costs in relation to annual family income (Figure-3). The intensity of catastrophic health payments are shown on Figure-4. Results showed among 33 patients, six households reported that share of OOP payments are much more than their income (Figure-4).

IV. Discussion

This study demonstrates the economic burden in terms of direct, indirect costs and total costs for both diagnosis and treatment that Saharia tribe, one among the PVTGs living in central India face during their TB disease. Because of the profound connection between poverty and TB, our study confirms that TB patients are from vulnerable groups, having poor living conditions, depending on primitive agriculture, low cost closed economy based on low level of technology, working as a daily wage labourer and not having regular incomes before their disease. Average incomes are substantially lower due to the informal economy and there is a higher prevalence of impoverished employees working in the informal sector. It is very clear that majority of TB patients didn't incurred any costs due to active case finding. Very small proportion incurred OOP payments due to shopping for diagnosis and non-medical costs during treatment was considerably high, since Saharia's are already economically poor and socially vulnerable becoming poor and many more are being trapped further into poorer due to the various costs of TB diagnosis and treatment. There is an urgent need; the Government of India should consider alternative health financing mechanisms that offer financial risk protection to the PVTGs in general and Saharia's in particular.

RNTCP in India is the largest national TB control programme in the world and also financing to improve outcomes in tribal areas. It has addressed many challenges and special provision was given in tribal areas on reducing financial burden to the TB patients throughout the course of treatment. Travel costs as bus fares for patients and one attendant is provided for follow-up and treatment. To cover these costs the patients are given an aggregate amount of Rs.250 (US$ 4.2) on completion of treatment. Volunteers are encouraged for sputum collection and transportation and provided Rs.100 to Rs.200 (US$ 1.7 to 3.3) per month per volunteer based on number of visits to DMC to hand over collected sputum. An amount of Rs.100 (US$ 1.7) per month if there is a minimum of one visit to the health center per week with collected samples (Surender et al. 2013). There is a need to ensure the implementation of these schemes, and its functions and impact in these areas. Since the Saharia's poor have less income higher proportion of their expenditure must go towards food than TB treatment.

There was evidence from India that direct OOP payments could push 2.2% of all healthcare users and one-fourth of all hospitalized patients, into poverty in a year (Peters et al. 2002). According to the NSSO data 55th Round, households spend about 5-6% of their total consumption expenditure on health (National Sample Survey Organization 2001). As per RNTCP the case findings are passive, chest symptomatic expected to go to hospital on their own. Finding from the current series, patients are diagnosed through active case finding, majority (85%) did not incurred any costs. On the other hand, it could also mean that households do not seek care if they cannot afford it or non-availability of services. This emphasizes the earlier point that it is also

important to explore the extent to which households do not use services because of inability to pay. It was report The availability of services proved to be significantly positively correlated with catastrophic spending in low and middle income countries but not in high income countries (Xu et al. 2003; Chuma et al. 2007). In many other European countries health insurance coverage is very comprehensive and OOP payments are either absent or do not differ across provider alternatives (Marco et al. 2010). In low and middle income countries, supply constraints limit the use of services, so countries with greater supply show higher levels of use and more financial catastrophe. Increasing the availability of services in poor countries is important to improving health.

It was also observed from this study that small proportion of patients' need to spent costs when they go for DOT in health facility based DOT centre or non-community based DOT provider. Also need to spent for follow-up examinations and these costs are seems to be very high ie 10% of annual family income. Our study finding corroborate with the study done in other countries Malawi and Kenya reported that patient and household costs of TB diagnosis are prohibitively high where services are provided free of charge (Kemp et al. 2007; Jane 2012; Devra et al. 2012).

In tribal areas most of the places there are only mud roads and travel facilities are poor. Health centres are not always easily accessible due to poor travel facilities. A sick person may have to travel 25 km to reach the nearest PHC and patients may have to spend more for travel to attend these centres. The main occupation is agriculture mostly daily wages; if daily wage labourer going to faraway health centre may result in work absenteeism and loss of income. These costs made him to borrow money for treatment or manage family expenditure. This catastrophic expenditure causes force to very deprived position. OOP costs for public and private health-care services may stand at the beginning of a spiral into poverty for many families and exacerbate the poverty of the already poor. This situation has been termed the 'the medical poverty trap' (Whitehead et al. 2001 & 2006; Iyer 2005). The loss of productive labour and frequently unaffordable expense of seeking treatment can thrust TB patients and their families deeper into poverty. When aggregated to the national level, the cost of TB to economic development and poverty reduction is tremendous (World Health Organization 2004). However the encouraging finding is that due to active case finding many poor TB patients dint not incurred any costs. Thus, TB control programme should consider active case finding strategy that provides financial risk protection to these kinds of vulnerable segments of population. So that the contribution of TB control makes to alleviation of poverty by reducing the economic burden that the disease inflicts on the poor.

Government of India was invested huge budget US$ 252 million for the year 2014 alone for National Tuberculosis Control Programme. The DOTS strategy was based on global scientific and operational guidelines and evidence, and that evidence has continued to evolve with time. As new evidence became available, the TB control programme has made necessary changes in its policies and programme management practices. In addition, with the changing global scenario, RNTCP is incorporating newer and more comprehensive approaches to TB control. To generate the evidence needed to guide policy makers and programme managers, the programme implemented measures to encourage operational research. Efforts of RNTCP to promote operational research yielded success and most of the studies has are linked to the main priorities of TB control. The programme requires more knowledge and evidence of the effectiveness of interventions to optimize policies, improve service quality, and increase operational efficiency. The current study provided evidence on different dimension to improve TB and economic outcomes among poor people living in poor countries.

The RNTCP has continuously been innovative and progressive in addressing issues related to TB control in the country. The programme is decentralized and diagnosis and treatment is provided free of costs to all patients. Despite these a patient suffering from TB incurred out of pocket expenditure for travel, stay and food while shopping for diagnosis and treatment. When people have to pay fees if they go to private or traditional healers or co-payments for health care, the amount can be so high in relation to income that it results in 'Financial Catastrophe' for the individual or the household. Such high expenditure can mean that people have to cut down on necessities such as food and clothing, or are unable to pay for their children's education. It was estimate that every year, approximately 44 million households, or more than 150 million individuals, throughout the world face catastrophic expenditure, and about 25 million households or more than 100 million individuals are pushed into poverty by the need to pay for services (World Health Organization 2005). Moreover, the impact of these OOP payments for health care goes beyond catastrophic spending alone. Many people may decide not to use services, simply because they cannot afford either the direct costs, such as for consultations, medicines and laboratory tests, or the indirect costs, such as for transport and special food. This was true from our study 45% didn't take any action for their symptoms suggestive of TB. DOTS may be failing to reach the poor because of the barriers that obstruct accessing TB control services along the pathway to cure from onset of symptoms to achieving a cure. Such impediments may undermine progress towards achieving the regional targets for TB control. Strategies

are thus needed to improve the accessibility of DOTS for the poor. These strategies will also begin to address inequity in the burden of TB and access to TB control.

a) Limitations of the study

The possible limitation of the analysis was this study captures only the patients making OOP payments for health services and does not consider people who need services but cannot afford them. Also the data on OOP payment collected for different recall periods using different questions introduce more memory bias. But it is undoubtedly important to continue to develop the database and the methods to strengthen knowledge about this important topic.

V. Conclusion

TB is a disease that disproportionately affects the poor. TB control program therefore need to ensure that the economically and socially disadvantaged groups do not face barriers that keep them from seeking treatment. It is a major challenge, not only for TB control, but also for overall health system to protect households from the risk of impoverishment resulting from health expenditure, and to ensure that the population receives health services when needed. Decision makers can use the information presented in this paper to better target financial risk protection strategies. Although decision makers in the health sector do not control many of the levers necessary to reduce income inequality and poverty directly, they can do so indirectly. But, Ministry of Health can actively advocate for complementary policies to reduce social inequalities and increased funding for health because they can improve health, reduce the chances of financial catastrophe, help poor households escape from poverty, and contribute to overall economic growth.

Table 1 : Demographic and socioeconomic profile of study population (n=220)

		Total patients		Nil costs	
		No	%	No	%
Demographic					
Age in years	≤35	87	40	72	38
	>35	133	60	116	62
Sex	Female	42	19	37	20
	Male	178	81	151	80
Family size	≤4 member	80	36	71	38
	>4 member	140	64	117	62
Socioeconomic					
Education	Literate	35	16	33	18
	Illiterate	185	84	155	82
Occupation	Labour	204	93	173	92
	Others	16	7	15	8
Poverty					
	BPL	173	79	143	76
	APL	47	21	45	24
Housing					
House type	Pucca	19	9	16	9
	Kuchcha	201	91	172	91
No of room	One	196	89	167	89
	> One	24	11	21	11
Separate kitchen	Yes	8	4	7	4
	No	212	96	181	96
Smoking					
Status	Yes	127	58	110	59
	No	93	42	78	41
Alcoholism					
Consumption	Yes	80	36	72	38
	No	140	64	116	62

Table 2 : Overall costs in Indian rupees (Rs. 1=US$ 60) incurred by PTB patients

		Diagnosis	Treatment	Total
Direct	Nil (No. & %)	189 (86)	195 (89)	188 (85)
	Mean (SD)	1229 (1193)	579 (567)	1642 (1530)
	Median (Range)	1000 (520-5250)	340 (60-2400)	1105 (210-6350)
Indirect	Nil (No. & %)	207 (94)	209 (95)	206 (94)
	Mean (SD)	573 (499)	1718 (2074)	1882 (2003)
	Median	400 (200-2000)	800 (200-7000)	1150 (300-7400)
Total	Nil (No. & %)	189 (86)	195 (89)	188 (85)
	Mean (SD)	1469 (1419)	1335 (2016)	2466 (2794)
	Median	1000 (210-6000)	500 (60-1800)	1300 (210-10100)

Table 3 : Key indicators of TB patients facing catastrophic expenditure

	Nil cost		Cost incurred		Total	
	No	%	No	%	No	%
For diagnosis						
Care seeking behaviour						
No action	99	53	Nil	-	99	45
Government	77	41	25	78	102	46
Private	12	6	7	22	19	9
Perception on care seeking						
HF is long distance	27	14	13	41	40	18
Lack of transport	45	24	15	47	60	27
Difficult to reach HF	67	36	20	63	87	40
Lack of money	52	28	16	50	68	31
For treatment						
Type of DOT provider (DP)						
Health workers	74	39	7	22	81	37
ICDS worker	37	20	10	31	47	21
Asha	29	15	8	25	37	17
School teachers	22	12	4	13	26	12
Others	26	14	3	9	29	13
DP is live in the same village	122	65	25	78	147	67
DOT is convenient	87	46	20	63	107	49
Return from DOT centre >1 times without medicine	63	34	7	22	99	45
Satisfaction with DP	94	50	20	63	102	46
Perceived stigma	12	6	3	9	19	9

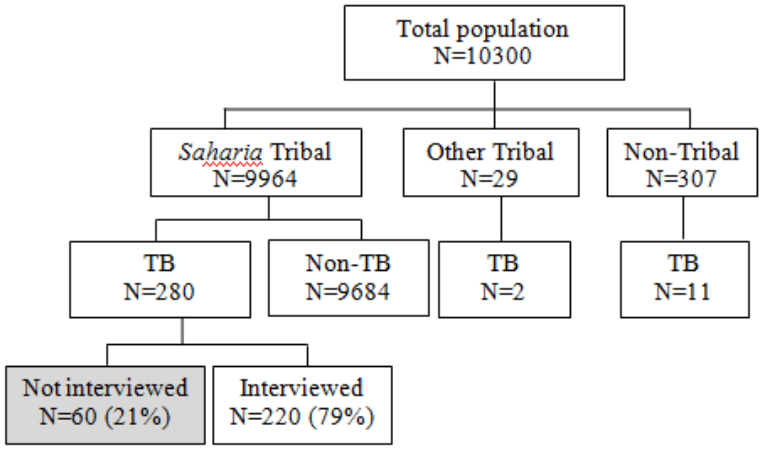

Figure 1 : Source of intake

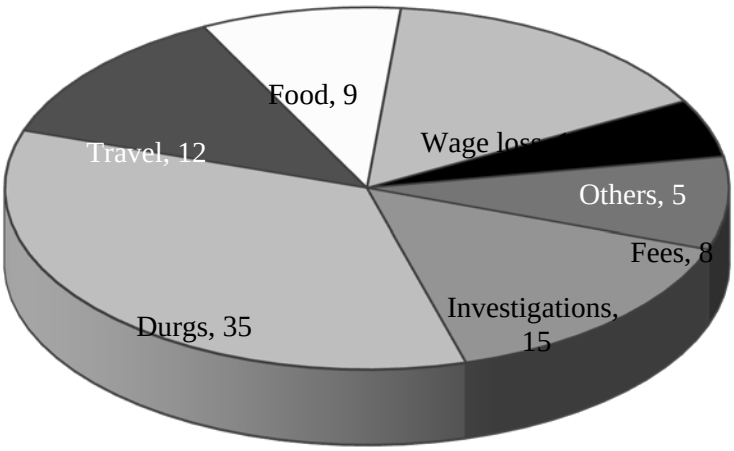

Figure 2 : Different components of costs

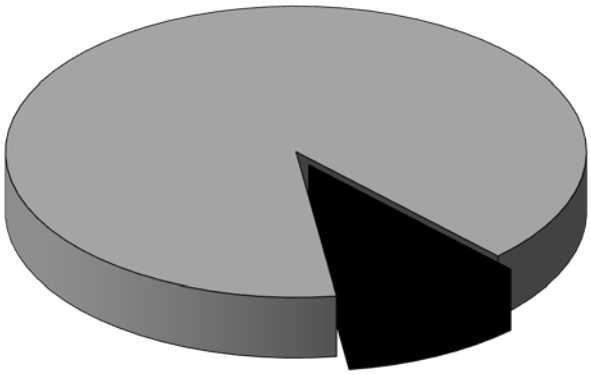

Figure 3 : Proportion of annual family income spent for TB diagnosis and treatment

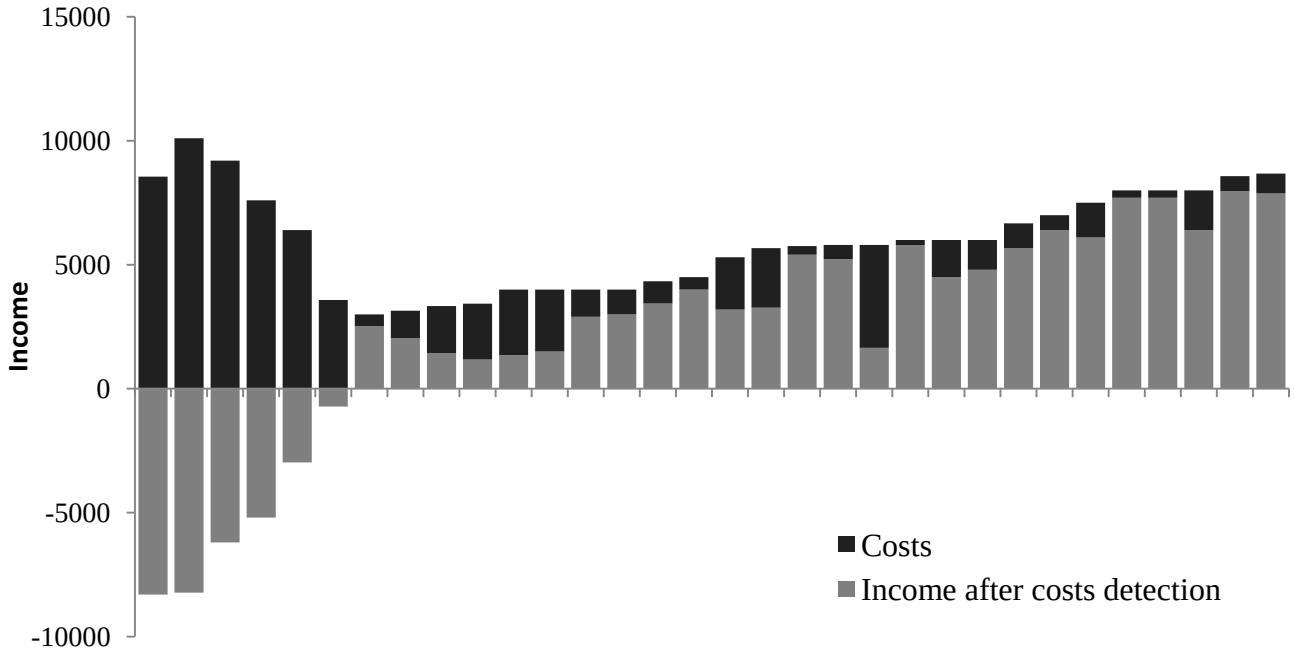

Figure 4 : Impoverishment and catastrophic expenditure headcount by TB patient's annual family income

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Miracle of Allicin, A Case Report

By Dr. Madhura TK
Defense Institute of Advanced Technology, India

Abstract- Hypertension is a chronic and end stage disease. The biomolecular mechanism involved in the pathogenesis can be interrupted for improving therapeutic approach and prognosis. identifying the risk factors and causes of hypertension is essential to categorize into idiopathic and secondary hypertension. Garlic used since ancient time has drawn attention for deeper research towards its contribution to various health benefits. Its vital component allicin has played key role in beneficial effects of garlic.

Keywords: *hypertension, atherosclerosis, angiotensin converting enzyme, allicin, alliin.*

GJMR-K Classification: *NLMC Code: WM 402, QV 55*

Strictly as per the compliance and regulations of:

Miracle of Allicin, A Case Report

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I. Case Report

55 years old male presented with history of indigestion since 3 months. More troublesome after having oily food stuff, fried items. Patient is a known case of type 2 diabetes mellitus since 8 years and hypertensive since 5 years. On treatment with T. Glimy 1 mg OD and T. Metformin SR 500 mg BD. T. Telmisartan 40mg OD and T. Amlodipine 2.5mg OD , T. Atorvastatin 20 mg HS , T. Aspirin 75mgHS.

Patient was examined thoroughly, basal BP measuring 158/92 mmHg and Per abdomen examination revealed tenderness in right hypochondriac region and epigastric region. Advised to undergo following biochemical investigations with respective test result as follows

FBS: 132 mg%
PPBS: 186 mg%
LIPID PROFILE: Total cholesterol – 248 mg%
Triglycerides – 228mg%
LDL Cholesterol – 112mg%
HDL cholesterol- 40mg%

S. Creatinine 1.0 mg%
Blood urea level: 32 mg%
Urine routine: NAD
Liver function tests:

Serum bilirubin total: 0.9 mg%
Direct: 0.3 mg%
Indirect 0.4 mg%

Total protein 7.0g%
Serum albumin 3.5g%
Serum globulin 1.8g%
SGOT levels: 48 IU/mL (normal range 12-38U/Lt)
SGPT levels: 55 IU/mL (normal range 7-41 U/Lt)

After the evaluation of biochemical investigations, the patient was advised to undergo ultrasound examination of abdomen and pelvis, which revealed Grade 2 fatty liver, other solid organs didn't depict any abnormality.

Patient was advised to consume to garlic, to get the essentials of allicin from it. The concentration of allicin to be consumed would be mg, and dandelion along with milk thistle post dinner for 6 weeks. Intermittent basal blood pressure reading after 15 days of prophylactic remedy showed 148/90 mmHg. This is bound to take serial reading on three different days at 8 am on empty stomach without tea/ coffee intake, thus avoiding effects of caffeine, phytates and tannates on blood pressure. Basal reading on all three days showed systolic BP 146-150 mmHg and diastolic reading 86-90 mmHg. Hence his antihypertensive medications were changed to Telmisartan 40 mg once daily skipping T. amlodipine with regular follow up. At the end of one month blood pressure reading with similar consecutive reading on three different days revealed systolic BP ranging between 138-144 mmHg and diastolic BP ranging between 82mmHg to 88mmHg, once again the dosage of antihypertensive medication was reduced to 20mg of telmisartan.

At the end of 6 weeks, the biochemical investigations were repeated with more focused review on lipid profile. Astonishing results were received with following values

LIPID PROFILE: Total cholesterol – 202 mg%
Triglycerides – 153mg%
LDL Cholesterol – 92mg%
HDL cholesterol- 42mg%

The patient was made to discontinue T. Aspirin, T. Telmisartan and T. Atorvastatin and continued to consume garlic essentials.

II. Garlic Essentials: A Boon to Healthy Heart

Being one of the most important organs in the body the heart is one of those organs that works non-stop. It circulates oxygen in the body and takes away the toxins produced, without which all other organs would shut down leading to death.

Atherosclerosis (in common term called as thickening and blocking of arteries) remains the major cause of death and premature disability in developed & developing countries. Current predictions estimate that year 2020 cardiovascular diseases, notably atherosclerosis, will become the leading global cause of total disease burden. Atherosclerosis of the coronary arteries commonly causes myocardial infarction and

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angina pectoris. Atherosclerosis of arteries supplying the central nervous system frequently provokes strokes and transient cerebral ischemia. In the peripheral circulation, atherosclerosis causes intermittent claudication and gangrene, and jeopardizes limb viability.

It is the narrowing or occlusion of the arteries by plaque, which consists of cholesterol, platelets, monocyte/macrophages, calcium, aggregating proteins, and other substances. Morbidity of atherosclerosis-induced coronary heart disease (CHD) gradually elevates annually due to the improvement of life standard and the change of lifestyle in recent years. However, the mechanism of the onset and development of atherosclerotic lesions are not completely understood until now. Many complicated factors, its interaction and interrelated biological processes contribute to atherosclerosis. Among these, high plasma levels of low-density lipoprotein (LDL), especially its oxidized form (ox-LDL), and activation of the renin-angiotensin system (RAS) are considered to be the key influencing factor of the generation and development of atherosclerosis.

Growth of atherosclerotic plaques probably doesn't occur in a smooth, linear fashion, but rather discontinuously, with periods of quiescence punctuated by periods of rapid evolution. After generally prolonged 'silent' period, atherosclerosis can manifest clinically. The clinical expressions of atherosclerosis may be chronic, as in effort induced ***angina pectoris*** or of predictable and reproducible intermittent ***claudication***. Alternatively, a dramatic acute clinical event, such as myocardial infarction, a ***stroke***, or ***sudden cardiac death*** may first herald the presence of atherosclerosis.

MAJOR RISK FACTORS: [1]

1	Cigarette smoking
2	Hypertension (BP >140/90mmHg)
3	Low HDL cholesterol (<40mmHg)
4	Diabetes mellitus
5	Family history of premature coronary heart disease (CHD) CHD IN MALE FIRST –DEGREE RELATIVE < 55years CHD IN FEMALE FIRST –DEGREE RELATIVE < 65years
6	Lifestyle risk factors Obesity (BMI > 30Kg/m^2) Physical inactivity Atherogenic diet
7	Age (men > 45years, women >55years)

III. Scientific Role of Garlic in Maitaining Healthy Heart

Garlic (Allium sativum) is originated from central Asia and belongs to Alliacae family. It is used as a flavoring agent. In Egyptian codex 3500 years old document notifies that garlic was used in the treatment of heart disorders, tumors, worm and snake bites etc. Majority of the garlic is composed by water around 65% followed by fructose, sulphur, zinc, selenium and moderate amounts of Vitamin A, low levels of calcium, magnesium, iron, manganese.

Allicin is an organosulphur compound, obtained from garlic. The aroma of garlic when freshly crushed is because of the content allicin relased by the action of the enzyme allinase on the substrate alliin. Allicin is an oily based yellowish liquid, which gives garlic its unique colour. Its biological activity can be attributed to both its antioxidant activity and its reaction with thiol containing proteins. The content of garlic by whole weight to its concentration of bioactive compound is 1:0.001. Allicin has a very short half life. Alliinase is irreversibly deactivated below pH 3; as such, allicin is generally not produced in the body from the consumption of fresh or powdered garlic. Allicin is unstable, breaking down into inactive components at 23 ^{0} C, thus cooking destroys the bioactive component of garlic. Allicin exhibits lipid lowering, blood thinner, increases local circulation and platelet inhibitor action thus preventing aggregation and clot formation.[3]

IV. Mode of Action Allicin

Alliin + Allinase enzyme and Water = Allicin + Pyruvate+ Ammonia [4]

The biological activity of allicin extracted from fresh garlic is thought to be related to a combination of factors:

1. Antioxidant activity

   Potent antioxidant with relevance to LDL oxidation and reduces peroxides accumulation in endothelial cells. As oxidized LDL cholesterol is known to bind to specific receptors and stimulate the activation of numerous pro-inflammatory changes in the vascular wall.[5]

2. Enzymes are also protein, and contain SH (sulphydryl) group for their biochemical interaction. Aliicin attacks the SH groups of protein interfering with their function. Cholesterol is synthesized in the liver with the help of rate limiting enzyme HMG (beta-hydroxy-beta-methylglutaryl) Co A reductase. Organosulphur content of allicin reduces the enzyme forming inernal didulphide bond and inactivation of thiol (-SH) group of enzymes like multienzyme complex of fatty acid synthesis. Thus contributing to lipid lowering action. [6]

   Garlic, in an amount approximating one-half to one clove per day (600-900 mg), has been shown to decrease total serum cholesterol levels by about 9%

3. Because of its organic nature, allicin rapidly penetrates into the cell. [6]

Hypertension and its Stages : [1]

CATEGORY	SYSTOLIC BP (mmHg)	DIASTOLIC BP (mmHg)
Normal	< 120 and	< 80
Pre hypertension	120-139 or	80-89
Hypertension stage I	140-159 or	90-99
Hypertension stage II	≥160 or	≥100

V. Role of Garlic in Prevention and Treatment of Hypertension

a) Improvements in vasodilatation due to maintenance of healthy endothelium secondary to prevention of accumulation of peroxides and other free radicals in endothelium and LDL oxidation. Protects and restores the elasticity of the arteries. [7]
b) Inhibition of angiotensin converting enzyme , thus reducing production of angiotensin II which is responsible for salt and water retention and vasoconstriction
c) Decreasing platelet aggregation
d) Lipid lowering effects by reducing hepatic cholesterol synthesis and fatty acid synthesis
e) Prevents lipid peroxidation of oxidized erythrocytes.[7]

VI. Role of Lipid Disorders in Heart Disease

Abnormalities in plasma lipoproteins and derangement in lipid metabolism rank the most firmly established and best understood risk factors for atherosclerosis. Elevated LDL levels promote atherogenesis likely involves oxidative modification Cholesterol is necessary for the normal body process. It is the vital component of the cell membrane and transports nutrients into the cell and waste products out of the cell. Cholesterol being the component blood lipids: LDL, HDL, VLDL etc. Thus hypercholesterolemia causes metabolic derangement leading to oxidative stress causing LDL oxidation and subsequent subendothelial accumulation forming foam cells.

The consistent benefit of LDL lowering by HMG CoA reductase inhibitors (eg. Atorvastatin) observed in risk groups causes salutary effects on lipid profile and direct modulation of plaque biology apart from lipid lowering. [8,9,11]

Other uses of Garlic

It is beneficial in patients with chronic sinusitis , allergic rhinitis, hypertension in late pregnancy (pre-eclampsia), travelers diarhhoea, flu, enlarged prostate (BPH-benign prostatic hyperplasia), building up immunity, prevention and treatment of Colon CA, gastric CA, CA breast, CA prostate, CA lung. [12,13]

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Determinants of Consistent Condom Utilization among Female Street Sex Workers in Wolaita Sodo Town, Ethiopia

By Yiftusira Wube Assemahegn & Kasahun Desyalew Mekonen
Wolaita Sodo University, Ethiopia

Abstract- This paper assessed the major determinants of consistent condom utilization among female street sex workers in wolaita sodo town of Ethiopia. A cross sectional study design was employed whereby the data collection process was completed from 10 April to 10 may, 2015. Both quantitative and qualitative research approaches were used. Survey and in-depth interview were the data collection instruments. Multivariate logistic regression analysis with crude odds ratio was used. The findings reveled that all respondents have experiences of unsafe sex with clients. Variables such as Age, Educational status, Alcohol and Chat abuse, primary reason to be street sex worker are found to be significantly associated with consistent condom utilization. On top of this, though knowledge of condom and its use seems well known, readiness of their customers to use condom and their interest of prioritizing extra money for sex without condom are also important factors of condom utilization. The fact that almost all of the street sex workers in the town are teen agers, they can be easily deceived to have sex without condom for extra money. Since most join this job because of peer pressure and aspiring good life, they fail to resist offers of extra money for unsafe sex.

Keywords: *street sex workers, consistent condom utilization, HIV/AIDS, wolaita sodo town, ethiopia.*

GJMR-K Classification: *NLMC Code: WS 105.5.S4, WP 610*

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I. Introduction

Globally, about 50% of HIV incidence cases are among youth aged 15 to 24, which calls greater attention in preventing the transmission of HIV among this particular age group (Kasymova et al, 2009). The distribution of the burden of HIV/AIDS is uneven across regions and different social groups and Sub Saharan countries are disproportionately affected from the disease than anywhere else (Nega & Zelalem, 2014; Kloos et al, Nd).

As one of the countries in the region, HIV infections in Ethiopia, based on different estimates, ranging from 2.1 to 3.0 million have been available in 2000 and 2001 and an estimated 117,000 to 208,000 people within the age range between 15 and 49 died due to AIDS in 2001. But these are all merely rough estimates and the prevalence of HIV infections and AIDS cases seems to continue to rise quickly (Kloos et al, Nd).

A key public health principle relevant to many diseases, including HIV, is that different social groups have disproportionate risk of acquiring disease which demands specific services for those who are at higher risk (WHO, 2011; Kurtz et al, 2005). Despite HIV epidemics seems decreasing in few sub-Saharan Africa countries in the general population, the relative importance of key social groups such as sex workers remains important (WHO, 2011). Similarly, even though HIV epidemic in Ethiopia is very high with more than 6 % of the adult population infected with HIV, the issue of some social groups who are at risk remains vital to prevent HIV transmission. In Ethiopia those groups who are found at higher risk for HIV infection are generally recognized to include sex workers, truck drivers and military men (FHI, 2002).

Sex workers are those who exchange sex for money which can be both sexes although most sex workers are female and patronized by male clients or sex buyers (Shannon et al, 2014; Balfour & Allen, 2014; NCCID, 2010; Gebregizabeher et al, 2015).

The burden of other STIs including HIV is high among sex workers worldwide (WHO, 2011; Shannon et al, 2014; Dhana et al, 2014). The prevalence of HIV among sex workers and their clients is normally ten to twenty times higher than the general population. Along with rapid client change, the possibility for onward transmission of the virus from an infected sex worker to clients may be higher than hundred times from other people living with HIV. More than half to two thirds of sex workers have a curable STI and higher 10% have an active genital ulcer. Over 30% have reactive syphilis serology and many have multiple infections (WHO, 2011).

In areas of poverty, especially food insecurity, sex work is usually seen as the desperate option for women even though the significant majority of sex workers, especially the younger ones, were not considered to be impoverished by local standards rather rejected by their families (WHO, 2011; Atalay, 2006; Balfour & Allen, 2014). As indicated in a study conducted by FHI (2002), nearly 60% of the sex workers were found in the age range between 15 and 24 years old (specifically street sex workers are from15-18 years

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old) and most stated that they started commercial sex for economic reasons. On top of this family disturbance is a commonly mentioned motivator to become a female sex worker (Atalay etal, 2006).

There is also abundance of evidence to suggest that for some, entry into sex work is the result of personal troubles (May et al, 1999. The work environment of sex shows a considerable variation and street sex work is among the outdoor settings (including parks, and markets) which comprises of intersecting social, physical and economic elements (Shannon et al, 2014). Street youth are vulnerable to situations that exposed them to sexual and reproductive health problems including HIV infection as a result of risky sexual behavior on a day to day basis (Brhane et al, 2014; Dhana et al, 2014). A study by (Hesketh et al, 2005) identified that median age for female street sex workers is 17.8 years.

Condoms are the only most successful existing technology so that a consistent use of it is the main strategy available to reduce sexual transmission of HIV (WHO, 2011; Shannon et al, 2014). It is a barrier method put on the erect penis that can prevent the ejaculated semen from entering in to the body of a sexual partner. Condoms, when used properly and consistently, are highly helpful in preventing HIV including other STIs (Nega & Zelalem, 2014). Consistent condom use in every sexual intercourse has remained one of the major challenge and indicator of behavior change in HIV/AIDS prevention process (Berihun & Taddesse, 2013). It noticeably varies by setting and client characteristics and in almost all studies showed that condom use varies by type of sexual partner (WHO, 2011).

Alcohol use, cigarette smoking or use of illicit drugs by youths associate with increased risks of sexual intercourse and lower rates of condom use (Mulu et al, 2014; Atalay et al, 2006; Maher et al, 2011). Alcohol use among clients and sex workers at the time of purchasing sex is common which is a frequently mentioned reason for having unprotected sex as the intoxication of both the sex worker and the client affects sexual decision-making and hinder condom negotiation skills (WHO, 2011; Mooney et al, 2013). Sex workers come from a wide range of socio-economic contexts (Balfour & Allen, 2014). Low educational experience of street sex workers is also one of the factors for unsafe sex (Atalay etal, 2006). The consequence of family breakdown has been documented by a number of studies as among the major reasons to enter in to sex work (Balfour & Allen, 2014).

A study by Hesketh et al (2005), conducted on female sex workers in Yunnan Province of China shows that awareness of HIV, STIs and condom use was generally good, but only 32% use condoms consistently and 18% of them never did. A study by Atalay etal (2006), also indicated that 12 % of the female sex workers reported as they experienced unprotected sex, even if there is a greater possibility for irregular condom use than what has been reported due to the very high prevalence of alcohol use. A study by (Berihun & Taddesse, 2013) showed that only around 32.8% of the total study participants use condoms consistently in every sexual encounter. A study among out-of-school youth aged 15–24 in Bahir Dar town of Northwest Ethiopia shows that condom use was low, with only 37% reporting consistent condom use, while 23% (26/112) had never used a condom during commercial sex (WHO, 2011).

As cited in Maher et al (2011), the existing literature suggests that brothel-based sex work may be much safer than street-based sex work with lower HIV prevalence and higher rate of consistent condom use (McKeganey & Barnard, 1996; Pyett & Warr, 1997; Dandona et al, 2005; Shannon et al, 2008; Shannon et al, 2009; Johnston et al, 2010). Sex workers are generally aware of their level of risk for HIV (WHO, 2011). Sexual violence against street sex workers by police men, their clients or any strangers is common Shannon et al, 2014). Despite there is an increasing trend in the availability of condoms among sex workers in the past few years, it cannot be used as a proxy for use rather for coverage of condom programs. Generally, Socio demographic background and behavioral peculiarities of female street sex workers together with the nature of their clients are among the mostly mentioned factors which determine consistent condom utilization practice. Therefore, this paper investigated prevalence and determinants of consistent condom utilization practice among street sex workers of wolaita sodo town, Ethiopia.

II. Methods and Materials

In this study both primary and secondary data were employed to achieve the study objectives. The secondary data was collected from women, children and youth affairs office of wolaita sodo town. In addition to this health bureau reports, books and research reports relevant to the study were used. Both quantitative and qualitative research approaches were utilized in this study in order to generate comprehensive data so that it is possible to adequately address the purpose of the investigation.

a) Study design

Cross-sectional descriptive study design of both quantitative and qualitative research approach was employed in this study. The rational for the selection of this particular design is that assessing the practice of condom utilization among street girls in wolaita sodo town can be possible by collecting data at one point in time.

b) The research setting

The study was conducted in Wolaita Sodo town, the capital of wolaita zone administration which is found in Southern Nations Nationalities and People's Regional

State (SNNPR), Ethiopia. Wolaita Sodo town is found 327 km away from Addis Ababa-the country's capital and 160 km away from Hawassa- the regional capital. Currently the town absorbs around 80,000 residents which is mainly the result of paramount rural-urban labor migration to town. In the past few years, the town has witness a significant progress in its infrastructural facilities and developmental activities.

c) Participants of the study

The study participants were those street sex workers who are found in wolaita sodo town. There were around 141 street sex workers who were spending their day time at the center arranged by south people development association operating under the umbrella of Mulu MARPs which is mainly working on Bio medical, structural and behavioral aspects of HIV/AIDS. Even though their number rise and fall every time, all the141 girls who were available during the data collection time were considered.

d) Tools of data collection

The major data collection tools used by this study were survey, case study and in-depth interview. A total 141 street girls who are found in the Mulu MARPs center which hosts them during day time were used as respondents of the survey. Those who are not member of the day care system were not considered as winning their consent is difficult and the 141 street girls who are already available in the center are supposed to be enough to administer the questionnaire in line with the size of the town. The qualitative data was gathered through In-depth interviews and case studies to explore the deep meanings, experiences and viewpoints of street girls in relation to the issue under investigation which would have been incomplete other ways. This was important specifically to supplement the survey data.

e) Data analysis

The quantitative data obtained through survey method was analyzed through descriptive statistics using spss version 20. Univariate analysis was used to describe study participants by socio demographic characteristics; bivariate analysis including simple logistic regression was used to see crude associations and multivariate analysis, multiple logistic regression, to see the effects of independent variables on dependent variable. Ors (95%CI) were measured in logistic regression analysis. A 0.05 significance level was taken to know the existence of significant correlation. Whereas the qualitative data collected through the in-depth interview and case studies were analyzed manually through careful understanding and interpretation of meanings and contents, organizing, transcribing and summarizing in line with the study objectives. All the data was collected in Amharic (the local language) and taped and directly translated into English by the researchers. A considerable effort was made to keep the originality of the information while translating it to English in the form of text.

f) Ethical considerations

At first a written clearance letter was taken from wolaita sodo university department of sociology and all the study participants were informed about the purpose of the study and finally their consent was obtained before the actual data collection process started. Since all participants spent their day time in center arranged by southern development association which is operating under the umbrella of Mulu MARPs, they do not need to hide them and refuse to be the study informant. Therefore wining their consent was not as such difficult.

III. Results and Discussion

a) Socio-demographic characteristics of study participants

A total of 142 street sex workers participated in the study. Regarding the age distribution of respondents, the majority of them are found in the age group of 12-18 (85.81%), 7.8 % were in the age group of 19-27 and 6.38 are above 27 years of age. A Majority of the study participants are followers of orthodox Christianity and Protestantism 67 (47.51 %) and 59 (41.84 %) respectively. Whereas 15 (10.63 %) of them were catholic religion followers and there is no one who is Muslim by religion. Concerning the educational status of the respondents, 7 (4.96 %) are illiterates, 6 (4.24 %) can read and write, 109 (77.3 %) have attained primary 1-8 grade level, 19 (13.47%) had secondary (grade 9 – 12), while there is no one who had tertiary educational level (higher education). The data indicated that 11 (7.8 %) of the study participants were married, 117 (82.97 %) were single, 9 (6.38 %) were divorced and the remaining 4 (2.83 %) were widowed.

Table 1 : social demographic characteristics of street sex workers in wolaita sodo town, 2015, N 141

Variables	Category	Frequency n=141	Percentage (%)
Age	12-18	121	85.81
	19-27	11	7.8
	Above 27	9	6.38
Religion	Orthodox Christianity	67	47.51
	Protestant	59	41.84
	Catholic	15	10.63
	Muslim	-	-
Educational status	Illiterate	7	4.96
	Read and write	6	4.24
	Primary, Grade 1-8	109	77.3
	Secondary, 9-12	19	13.47
	Higher education	-	-
Marital status	Married	11	7.8
	Single	117	82.97
	Divorce	9	6.38
	Widowed	4	2.83

Case one

I am 17 and I came from 'kucha' area six months ago. I have learned up to 7th grade and I droped out. I joined this job because of my neighbor who advised and convinced me to follow her as she is benefited a lot from it. So I decided to leave my home without the knowledge of my parents. On average I earn 200 birr per day. Every night we stand around Tikmt Abeba hotel so they came to select and peak one of us. I have experienced many men who argued as they do not want to use condom due to the fact that it reduces their level of orgasm. So they tried to convince me through giving me some top up money. Others refuse to use condom after we entered in the room while others took the condom out even during sexual intercourse. Most of the time I call the guard and they help me escape except those situations in which they put off the condom during sexual intercourse that I couldn't save myself. Sometimes I make sexual intercourse without condom when I get drunk unless he insists to use condom. I always feel as my life is so bad but I have no way out to change my life as fast as possible.

b) Drug abuse, Sexual history and condom utilization of study participants

i. *Drug abuse of the study participants*

The study revealed that, the majority of street sex workers drinks alcohol and chew chat. Around 129 (91.48%) of the respondent drunk Alcohol and 109 (77.3 %) of them chew chat. There are relatively few smokers, only 17(12.05 %) are smokers.

Table 2 : Alcohol and other drug abuse of street sex workers in wolaita sodo town, 2015, N=141

Variables	category	Frequency N=141	Percentage (%)
Drinking Alcohol	Yes	129	91.48
	No	12	8.51
Chewing chat	Yes	109	77.3
	No	32	22.69
Smoking Cigarette	Yes	17	12.05
	No	124	87.94

ii. *Sexual history and condom utilization among study participants*

In relation to the age at first sex, all of the study participants started sexual contact at early age from 12-18. In addition to this all of them didn't use condom at their first sex. Starting sex at very early age without condom increases the vulnerability of street sex workers to HIV/AIDS and other sexual transmitted diseases as age is one of the risk factor of sexual behavior. Concerning primary reason to be a street sex worker, 93 (65.95 %) attribute to economic reasons, 31 (21.98 %) mentioned family breakdown and the remaining associated it with personal troubles. All of the study participants have ever heard about condom. From those who have ever heard of condom, 135 (95.74 %) think of condom primarily to prevent HIV/AIDS and the rest 6 (4.25 %) consider condom primarily to prevent unwanted pregnancy. It seems that all study participants have knowledge about condom utilization in terms of prevent HIVAIDS and unwanted pregnancy. Regarding how frequent they utilize condom whenever they make sexual intercourse, 114 (76.31 %) of participants reported as they are inconsistent in condom utilization and only less than a quarter of them use condom consistently.

Table 3 : Primary reason to be street sex worker, sexual history & condom utilization of street sex workers in wolaita sodo town, 2015, N=141

Variables	Category	Frequency	Percentage
Primary reason to be street sex worker	Economic reason	93	65.95
	Family breakdown	31	21.98
	Personal trouble	17	12.05
Age of first sexual contact	12-18	141	100
	18 and above	-	-
Ever heard of condom	Yes	141	100
	No	-	-
Perceived primary use of condom	Prevent against HIV/AIDS	135	95.74
	Prevent unwanted pregnancy	6	4.25
Condom utilization at first sex	Yes	-	-
	No	141	100
Frequency of condom utilization	Consistently	27	23.68
	Inconsistently	114	76.31

c) *Determinants of consistent condom utilization among the study participants*

Table 4: determinants of consistent condom *utilization* among female street sex workers in wolaita sodo town, Ethiopia, 2015

Variables		condom utilization		Crude OR (95% CI)	Adjusted OR (95% CI)
		Consistent	Inconsistent		
Age	12-18	19	102	1.96 (1.19,3.22)	2.47(1.38,4.43)**
	19-27	6	5	0.68(0.38,1.21)	0.54(0.28, 1.04)
	Above 27	2	7	1.64(0.17, 2.34)	0.82(0.38, 1.79)
Educational status	Illiterate	1	6	1.37(1.06, 2.22)*	2.67(1.10,5.52)**
	Read and write	2	4	0.85(0.50, 1.43)	0.67(0.30, 1.49)
	Primary, Grade 1-8	13	96	2.79(1.24, 4.43) *	1.93(0.89, 3.54)
	Secondary, 9-12	11	8	1.00	1.00
Religion	Orthodox Christianity	14	53	0.61(0.32, 1.15)	0.69(0.34, 1.39)
	protestant	11	48	0.26(0.05,1.40)	0.39(0.07, 2.18)
	Catholic	2	13	0.68(0.38, 1.21)	0.54(0.28, 1.04)
Drinking Alcohol	Yes	18	111	2.78(1.26, 4.42) *	1.73(0.78, 3.67)
	No	9	3	1.00	1.00
Chewing chat	Yes	16	93	2.73(1.22, 4.41) *	1.93(0.89, 3.54)
	No	21	11	1.00	1.00
Smoking Cigarette	Yes	1	16	2.08 (1.10,3.92)	2.46(1.17,5.13)**
	No	26	98	1.00	1.00
Primary reason to be street sex worker	Economic reason	18	75	2.08 (1.10,3.92)	2.46(1.17,5.13)* *
	Family breakdown	7	24	0.97[.584, 1.62]	0.82[.465,1.45]
	Personal trouble	2	15	1.96 (1.19,3.22)	2.47(1.38,4.43)*

Case two

I am a 16 years old girl. I came to Wolaita Sodo town a year ago from Bele (Kindo Koysha worada). I leave my family's home thinking that I will live a good life as I see some of my friends from our neighbor do the same and return back to their family with good cloths and money. Right from leaving my family home, I have been working as house servant for almost three months. But I couldn't live with them because of the continuous disagreement with the wife and one day I decided to leave the house and change my occupation. Then I became a street girl thinking that I will be able to make more money than what I did before. On average I earn 150-200 birr though there are days that I couldn't find any man. I have witnessed a number of men who refuse to use condom because of which I return the money and leave the room. There are also conditions whereby they tried to tear the peak of the condom during sexual intercourse which is really challenging to resist and escape from them so this is my experience for not using condom regularly. Sometimes they tried to use force and I shouted to call the hotel guard to let me escape from the man. Due you to this I always try my best not to go with them to their home in the absence of nobody to seek help if something bad happened. I have experienced a number of men who took the condom out during sexual intercourse in which I couldn't do anything to escape so I feel always bad when I remember those days.

IV. Discussion

In Ethiopia adequate data on sexual behavior and related knowledge of condom utilization and associated factors across different social groups is scarce. This study was meant to study the determinant of consistent condom utilization among female street sex workers in Wolaita Sodo town of southern Ethiopia. It provides evidence and new insight to give attention and urgent response in providing applicable intervention strategy to these particular social groups. The majority of female street sex workers (85.81%) are found to be in their early age which is within the range of 12-18 years of age. This increases their vulnerability to unsafe sex for extra money as they can be easily deceived by their clients. This is further aggravated by the absence of regular sexual partners which remained one of the most important risk factors for the spread of HIV/AIDS. Around 77.3% of respondents have only Primary educational experience (Grade 1-8) which is mainly the fact that a majority of them are under eighteen years of age. This is also true of the marital status of most street sex workers (82.97% are single).

The study also investigated the primary reason to be street sex worker and found out that economic reason accounts the substantial size of respondents (65.95 %) followed by Family breakdown (21.98 %). Only around 12 % of them are force to this life due to personal trouble.

In this study age at first sexual intercourse for all of the study participants ranges from 12 to 18 years of age. On top of this all of the respondents didn't use condom at first sex despite all of them are aware of HIV/AIDS and condom. Regarding the perceived primary use of condom significant majority (95.74 %) of them reported as it is important mainly to prevent against HIV/AIDS than unwanted pregnancy. Around 76.31% of them reported that they have inconsistent condom utilization habit which is determined by the circumstances under which they negotiate the business. Only the remaining 23.68 % of them respond as they use condom consistently. Regarding the level of awareness and utilization of condom, a number of similar studies revealed that there is high level of awareness of HIV/AIDS and other STIs including condom utilization. But the problem of inconsistent condom utilization is mainly because of the misconception and low attitudinal change of their male partner in using condom. On top of this a need for extra money in exchange of sex without condom is also another reason as there are a number of male clients who negotiate sex without condom for extra money. Violence by male partners has also its own impact on many street sex workers which increased their vulnerability to HIV/AIDS. The fact that they have multiple sexual partners most of whom have much older than them and sexually experienced, this condition may facilitate the transmission of HIV/AIDS.

The findings of the study also confirmed that high risk sexual behaviors are posing a great challenge among study groups in using condom consistently. The majority of them took different drugs such as alcohol, chat, cigarettes and other stimulants. Around 91.48% and 77.3% of respondents drink alcohol and chew chat respectively. The qualitative data also shows that the primary reason for engaging on such activities is to get relief from stress or anxiety and also they mentioned that it is during this time that they got their clients. In this study, Primary reason to be street sex worker, age, Educational status, alcohol drinking, cigarette smoking and chat chewing are found to be significantly associated with inconsistent condom utilization habit among female street sex workers in Wolaita Sodo town. Virtually, all the informants in the qualitative data have indicated that AIDS is among the leading health problems in their respective localities. unprotected sex that is the major risk factor for the transmission of HIV/AIDS and STDS. Despite this they asserted that refusal and luck interest of male partners (so that they force them to have sex without condom) is among the main reasons for inconsistent utilization of condom. Similar finding from other studies also showed that, male's resistance to condom use and women's inability to negotiate safer sex puts women's at greatest risk of HIV infection. For male the reason for resisting condom includes concern about reduced sensitivity and ignorance of proper condom utilization. In addition to this when they encounter drunken individuals who took more alcohol and who already know as they are HIV positive, they argued, they refuse to use condom.

Obviously there are apparent limitations with a study relying on self-report on some sensitive topics despite their full willingness to participate in the study. Even though interviews were conducted in private settings and with guarantees of anonymity and confidentiality, the girls may have been suspicious of these guarantees as they may fear not to be expelled from the day care center due to presumed misdeeds. Despite all these limitations the findings provide a valuable insight and timely input on female street sex workers which is commonly difficult issue to investigate due to their refusal to give us a valid and appropriate response for every question.

V. Conclusion

The findings of this study indicate that knowledge about HIV/AIDS and condom is better than condom utilization. Almost all of them have enough knowledge of condom and its use but among major factors which determine condom utilization are refusal of their customers to use condom and their deception to prioritize extra money for sex without condom which

leads to The study confirmed that the prevalence rate of consistent condom utilization among female street sex workers is only 23.68%. A large number of respondents reported that they have experiences of unsafe sex with clients. Due to the fact that almost all of female street sex workers are teen agers and less educated, they can be easily deceived to have sex without condom for more money which can be mentioned as the primary determinant for inconsistent use of condom. Since most join this job because of peer pressure and aspiring good life, they fail to resist offers of extra money for unsafe sex. It also confirmed the presence of significant gaps in the consistent condom use by respondents across different variables. Among the crucial factors that are significantly associated with consistent condom utilization among female street sex workers of wolaita sodo town includes, age, educational status, Primary reason to be street sex worker, Smoking Cigarette, Chewing chat and Drinking Alcohol Whereas, consistent condom utilization was not significantly associated with religion. Generally the study concluded that there is great gap between awareness and using condom. Therefore, it recommends some intervention strategies which could fulfill the gap between awareness and practice on condom utilization.

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Patient's Perception towards Service Quality of Government Hospitals an Empirical Study in Nilgiris District

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Abstract- India is the second most populous country in the world. Although there have been major improvements in public health care sector in since 1950's. The country is passing through demographic and environmental transition which is adding to burden of diseases. And Health care facilities and services in the government hospitals is playing vital role of society and promoting health care service in India. And the most of the people in nilgiris living at rural part of areas and their referring to government hospitals for health check up and various major and minor diseases and health problems. Because of due to economically below poverty. This study has to reveals perception towards service quality in government hospital for their treatments, The problem of this study reveals in government hospitals were insufficient infrastructure facilities, technological aspect and medical equipments, If a response is promised in a certain time, does not happen and responding the client quickly, and insufficient doctors. Data have been collected through interview schedule in Nilgiris district.

Keywords: service quality in government hospitals and insufficient infrastructure facilities, technological aspect and medical equipments, responsiveness, and insufficient doctors.

GJMR-K Classification: NLMC Code: WX 153

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Keywords: service quality in government hospitals and insufficient infrastructure facilities, technological aspect and medical equipments, responsiveness, and insufficient doctors.

I. Introduction

a) History of Nilgiris District

The Nilgiris, because of its natural charm and pleasant climate, was a place of Special attraction for the Europeans. In 1818, Mr. Whish and Kindersley, who were assistants to the Collector of Coimbatore, discovered the place Kotagiri near Rengaswamy peak. John Sullivan, the then Collector of Coimbatore was greatly interested in this part of the country. He established his residence there and reported to the Board of Revenue on 31st July 1819.

The Name 'Nilgiris' means Blue hills (Neelam – Blue and giri – Hill or Mountain) the first mention of this name has been found in the Silappadikaram. There is a belief that the people living in the plains at the foot of the hills, should have given the name, the Nilgiris, in view of the violet blossoms of 'kurinji' flower enveloping the hill ranges periodically. The earliest reference to the political history of the Nilgiris, according to W.Francis relates to the Ganga Dynasty of Mysore.

Immediately after the Nilgiris was ceded to the British in 1789, it became a part of Coimbatore district. In August 1868 the Nilgiris was separated from the Coimbatore District. James Wilkinson Breeks took over the administration of the Nilgiris as its Commissioner. In February 1882, the Nilgiris was made a district and a Collector was appointed in the place of the Commissioner. On 1st February 1882, Richard Wellesley Barlow who was the then Commissioner became the First Collector of Nilgiris.

b) District Administration

The Nilgiris District Comprises of six taluks, Like Udhagamandalam, Kundah, Coonoor, Kotagiri, Gudalur and Pandalur. These taluks are divided in to four Panchayat Unions viz., Udhagamandalam, Coonoor, Kotagiri and Gudalur besides two Municipalities, Wellington Cantonment and Aruvankadu Township. The District consists of 56 Revenue Villages and 15 Revenue Firkas. There are two Revenue Divisional in this district, were Coonoor and Gudalur. There are 35 Village Panchayat and 13 Town Panchayat in this District.

Name of the Revenue Division	Name of the Taluk	No. of Revenue Firkas	No. of Revenue Villages	Town Panchayat		Village Panchayat
Coonoor	Udhagai	3	13	Udhagai	4	13
	Kundah	2	7			
	Coonoor	3	9	Coonoor	4	6
	Kotagiri	3	15	Kotagiri	1	11
Gudalur	Gudalur	2	8	Gudalur	4	5
	Pandalur	2	4			

Reference: Source: District of the Nilgiris District Administration, Last Updated on 25-02-2012 - E-mail: collrnlg nic in Phone: 0423-2442344 © District Administration The Nilgiris, Tamilnadu, India.

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c) The Nilgiris District: Census Data on 2011

In 2011, The Nilgiris had population of 735,394 of which male and female were 360,143 and 375,251 respectively. In 2001 census, The Nilgiris had a population of 762,141 of which males were 378,351 and remaining 383,790 were females. The Nilgiris District population constituted 1.02 percent of total Maharashtra population. In 2001. The Nilgiris District Population Growth Rate There was change of 3.51 percent in the population compared to population as per 2001. In the previous census of India 2001, The Nilgiris District recorded increase of 7.31 percent to its population compared to 1991.

d) Health Sector and Infrastructures

Now – a – day's health care sector playing vital role of the human society. Whether growing population and shortage of health care service providers meet the very big challenges of the growth of human society, particularly government hospitals and their quality of services have been played in very huge role in the rural part of areas.

Even though rapid growth of population and shortage of health care facilities technological aspects in government hospitals. Government hospitals have been played on essential role of human society at rural areas, and demand of health care service in government hospitals increasing to the Day – by – Day because of the certain factors like, better facilities, services and technological equipments provide to the patients. And due to the several reasons perception of government hospitals and its treatments, infrastructure available, technological equipments with the hospitals, a noble suggestions and other related studies and references.

In nilgiris There are one District Head Quarters Government Hospital, 5 Taluk Hospitals, 28 Primary Health Centers, 194 Health Sub-Centre's and 5 Plague circles. And The Nilgiris District from its very inception has been a favored health resort of the Europeans and the officials of the Government as well. At present, the District has 194 Govt. Health Sub Centers, 28 Government. Primary Health Centers, 6 Government Hospitals, 2 Government dispensaries and one District Tuberculosis Centre.

Reference: Source: District Of The Nilgiris District Administration, Last Updated on 25-02-2012- E-mail: collrnlg nic in Phone: 0423-2442344 © District Administration The Nilgiris, Tamilnadu, India.

No of Government Hospitals in Nilgiris District in all Regions

S.No	Name of the Hospitals in Ooty	Coonoor	Wellington
1	Govt. H.Q.Hospital	Govt. Lawly Hospital	Miltary Hospital
2	Govt.Sait Hospital	Sagayamatha Hospital	Cantonment Hospital
3	Vijaya Hospital	Nankem Hospital	Kotagiri
4	Saraswathi Mani Hospital	Emanuel Eye Hospital	Govt. Hospital
5	Parvathi Nursing Home	Family Plan. Asso.India	KMF Hospital
6	Sanhita Hospital	Gudalur	Holy Family Hospital
7	Nirmala Nursing Home	Govt. Hospital	
8	Blisy Eye Hospital	Devershola	
9	District TB.Centre	Garden Hospital	
10	ESI Dispensary		

Health and family welfare Hospitals, Dispensaries, Bed Strength, Doctors and Nurses
In Nilgiris District Year - 2008 to 2009

		Indian Medicine							
Sl No	Classification	Modern medicine	Ayurvedic	Siddha	Unnani	Combined	Total	Homeopathy	Grand Total
1	Hospitals	26	-	-	-	-	-	-	26
2	Dispensaries	02	-	02	-	-	02	02	06
3	Primary health center	28	-	-	-	-	-	-	28
4	Health sub center	194	-	-	-	-	-	-	194
5	Other medical institutions	00	-	-	-	-	-	-	Nil
6	Bed Strength	839	-	-	-	-	839	-	839
7	Number of Doctors	74	-	-	-	-	74	01	75
8	Number of nurses	105	-	-	-	-	105	-	105

No of Allied pathological units available in Niligiris

Sl No	Name of the municipalities	No of pathological units
1	Ooty (M)	01
2	Coonoor (M)	01
3	Udhagamandalam (B)	01
4	Coonoor (B)	01
5	Kotagiri (B)	01
6	Gudalur (B)	01

SNCU Sick Neonatal care units and state health society, Tamil Nadu Published strength of Government Hospital in Nilgiris District. State health society, Tamil Nadu – established of 17 neonatal intensive care units (NICUS sick neonatal care units and health and family welfare EAPII /2 Dept dated 13 / 05 / 2013.

Sl No	District	SNCU to be Established/ Strengthened	No of staff nurses to be placed on Contract basis	No of medical officer to be placed
1	Nilgiris	Govt Hospital Gudular	10	21

Sl No	District	Name of the medical college hospital and Govt Head Quarters/ Sub (Dst) Hospitals	No of staff nurses to be placed on Contract basis as nutrition counselors
1	Nilgiris	Govt Head Quarters Hospitals Nilgiris	(1)

II. Objective of the Study

- ✓ To found the standard of government hospitals that is understandable to patients.
- ✓ To identifying the facilities for the government hospital.
- ✓ To originate to the government hospitals and their quality of service and treatments.

a) Statement of the problems

The government hospitals have been played remarkable role in India particularly rural part of areas. As well as economically and financially low level people depends on government hospitals because of their minor and major health problem and their quality of treatment. This study reveals the major problems in government hospitals were insufficient infrastructure facilities, technological aspect medical equipments and medicines, If a response is promised in a certain time, does not happen and responding the client quickly, and quality of services.

Research Methodology: The percent study analysis and evaluation of the research questions are carried out through the primary and secondary data. Primary data collected through observation and direct interview schedule in government hospitals. The study was conducted in government hospitals and primary health care centers in Nilgiris district. The secondary data have been collected from the news papers and articles and district administration office at Nilgiris district to support the present study.

State health society, Tamil Nadu – established of 17 neonatal intensive care units (NICUS sick neonatal care units and health and family welfare EAPII /2 Dept dated 13 / 05 / 2013., District Of The Nilgiris District Administration, Last Updated on 25-02-2012 - E-mail:collrnlg nic in Phone :0423-2442344 © District Administration The Nilgiris, Tamilnadu, India.

b) Limitation of the study

The period of the study is conducted to two months. And the study will be conducted to admit in different wards and out patients, and study will depend upon the accuracy of information to given by the patients.

c) Sample size and sampling technique

The sample size preferred for this study 50 respondent which including the general demographic profile of the respondents. And this study has to elect Non – probability sampling methods.

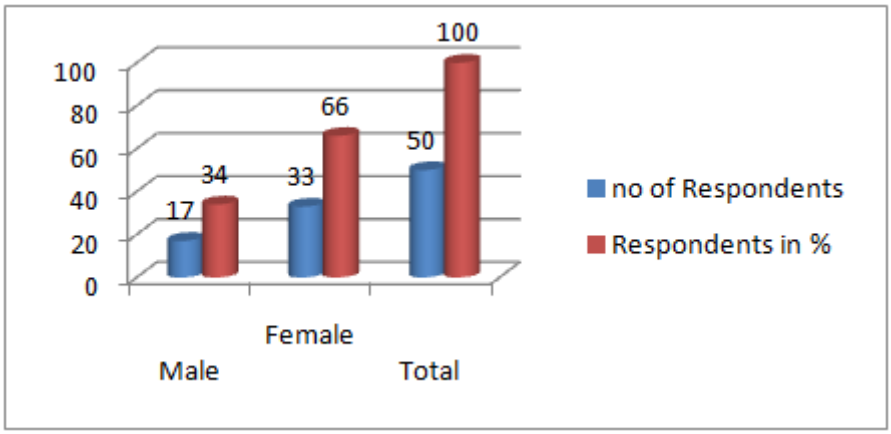
Statistical Tools: The studies were includes statistical tools is a simple percentage calculation and bar chart.

$$\text{Simple percentage} = \frac{\text{No of Respondents}}{\text{Total No of Respondents}} * 100$$

Data Analysis: Table No – I Gender of the Respondents

S.No	GENDER	Respondents in Number	Respondents in %
1	Male	17	34
2	Female	33	66
	Total	50	100

Interview schedule:

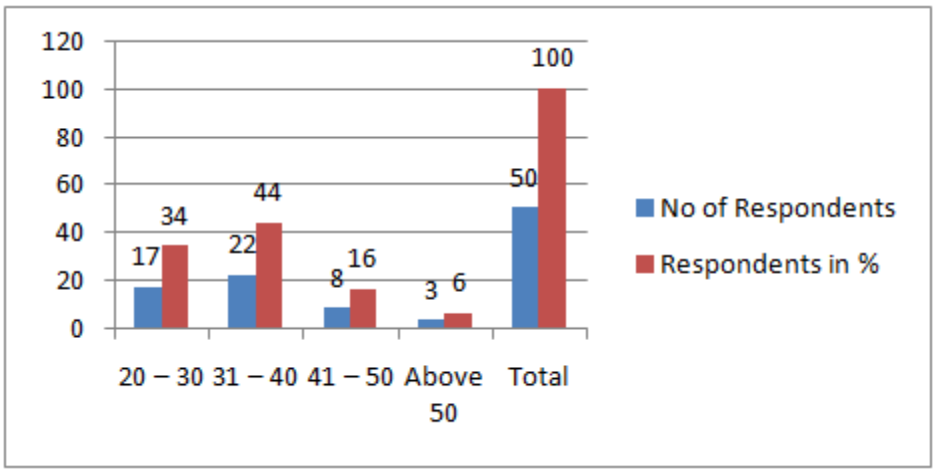


Interpretation: The above table reveals that 34% of the respondents are females and 66% of the respondents are male.

Table No – II Age wise Classification

S.No	Age Group	Respondents in Number	Respondents in %
1	20 – 30	17	34
2	31 – 40	22	44
3	41 – 50	8	16
4	Above 50	3	6
	Total	50	100

Interview schedule:



Interpretation: The above table reveals that 44 percentages of the respondents are belongings to the age group of 31 to 40 those who contribute to their views on government hospitals

Table No –III Occupation status

S.No	Occupation	No of Respondents	Respondents in %
1	Agricultural	8	16
2	Daily wages	14	28
3	Employed in professional	24	48
4	Business	2	4
5	Others	2	4
	Tatal	50	100

Interview schedule:

Interpretation: From the above table reveals the status of occupations level respondents 48% of the people are being employed in professional and 28% of respondents in daily wages, 16% in agricultural and both the business and others only 4%.

Table No –IV Economic Status

S.No	Economic status	Respondents in Number	Respondents in %
1	Below 5000	20	40
2	5000 – 7500	3	6
3	7500 – 10000	19	38
4	Above 10000	8	16
	Total	50	100

Interview schedule:

Interpretation: From the above table state income level of the respondents 40% of the respondents below 5,000, Rs.5,000 to 7,500 6%, 38 percentages of the respondents 7,500 to 10,000 and 16 percentages of the respondents above 10,000.

Table No – V Awareness about Government Hospital

S. No	Variables	Respondents in No	Respondents in %
1	Yes	47	94
2	No	3	6
	Total	50	100

Interview schedule:

Interpretation: The above table shown as 94 percentages of rural people aware about the government hospitals

Table No –VII Satisfaction of services in Government Hospital

S.No	Variables	Respondents in Number	Respondents in %
1	Yes	17	34
2	No	33	66
	Total	50	100

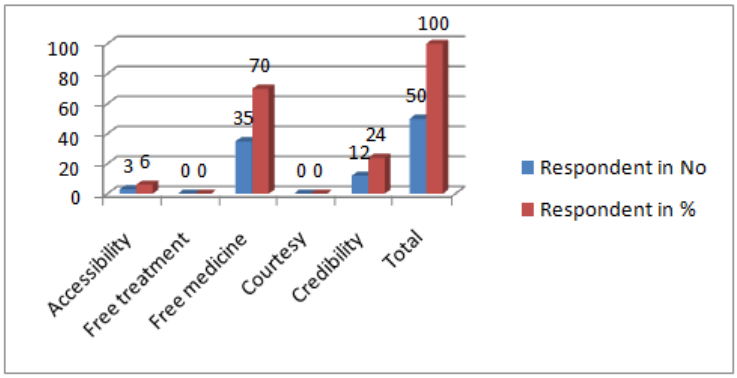
Interview Schedule:

Interpretation: The above table shown as whether the government hospitals provide quality of service 34% respondents they said yes and 66 percentages of the respondents said no.

Table No – VIII Perception of the Respondents on the Reasons to visit Government Hospital

S.No	Variables	Respondents in Number	Respondents in %
1	Accessibility	3	6
2	Free treatment	0	0
3	Free medicine	35	70
4	Courtesy	0	0
5	Credibility	12	24
	Total	50	100

Interview schedule:



Interpretation: About 70 percentages of the respondents reveals major reason to visit on government hospital for free medicine.

Table No –X Preference and rating for Quality service in Government Hospital

S.No	Variables	Respondents in Number	Respondents in %
1	High	3	6
2	Very high	0	0
3	Normal	35	70
4	Low	0	0
5	Very low	12	24
6	Don't know	0	0
	Total	50	100

Interview Schedule: Interpretation; The above table reveals 70 percentages of the respondents state the choice of preference is normal in quality of service in government hospital.

Table No –XI Responsiveness

S.No	Variables	Respondents in Number	Respondents in %
1	Strongly agree	0	0
2	Agree	17	34
3	Neutral	19	38
4	Disagree	14	28
5	Strongly disagree	0	0
	Total	50	100

Interview Schedule:

Interpretation: The above table reveals 38% of the Respondents replied responsiveness and caring of Government Hospital in impartial (Neutral).

Table No – XII Factor influencing you to select to Government hospital for your treatment

S.No	Variables	Respondents in Number	Respondents in %
1	Free medical treatment	38	76
2	Hospitality and infrastructure	2	4
3	Quality treatment	5	10
4	Free medical camp	5	10
5	Free ambulance facility	0	0
6	Timely attending the case	0	0
	Total	50	100

Interview Schedule:

Interpretation: If is learn from the above table that 76% of the respondents have been influenced by the free medical treatment and remaining 24% of the respondents influenced by the infrastructure and quality of treatment.

Table No –XIII Perception on the Level of Satisfaction of Quality in Government Hospital

S.No	Variables	Respondents in Number	Respondents in %
1	Highly satisfied	0	0
2	Satisfied	17	34
3	Neutral	15	30
4	Dissatisfied	18	36
5	Highly dissatisfied	0	0
	Total	50	100

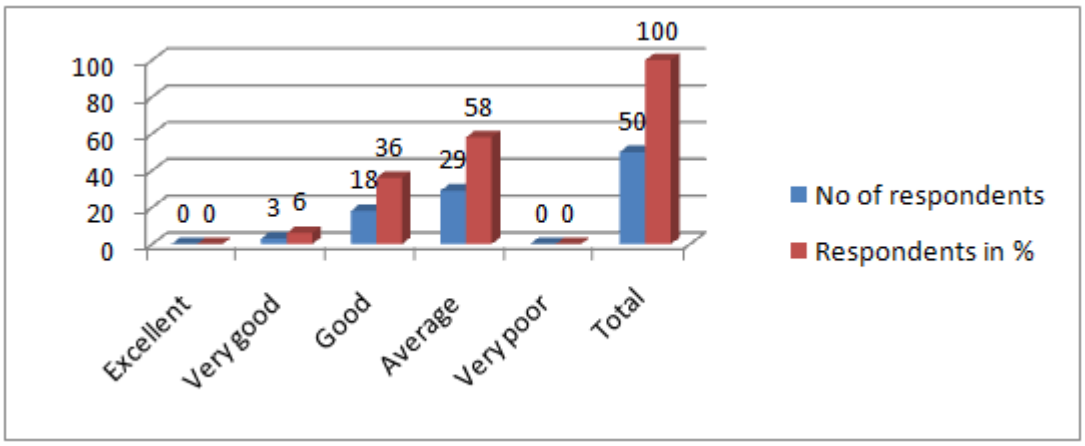
Interview Schedule:

Interpretation: The table reveals about 36 percentages of the respondents felt that qualities of the government hospitals in all aspect were dissatisfied, 34 percentages of the Respondents were satisfied and 30 percentages of the respondents said neutral.

Table No – XIV Quality of Service in Government Hospitals

S.No	Variables	Respondents in Number	Respondents in %
1	Excellent	0	0
2	Very good	3	6
3	Good	18	36
4	Average	29	58
5	Very poor	0	0
	Total	50	100

Interview Schedule: Interpretation: From the above table reveals that 94 percentages of the respondents replied that the quality of the government hospital in health care service good and average.



III. Findings and Conclusion

- Patients are satisfied with the government hospitals and the perception is responsiveness of the doctors, staff and they provide quality of service.
- Patients they may feel and expect doctors have been taken more care of the patients.
- Government hospitals and doctors also play on important role in economically and financially low level people, and especially rural part of areas like their minor and major health problem and quality of service and treatments.
- There is a problem faced by the patients in government hospitals, insufficient infrastructure facilities, technological aspect and they want that it should be quality of service and treatment.
- And the infrastructure, free treatment, cost and free medicines are influencing the patients to select a government hospital.

IV. Suggestion and Recommendations

Government hospitals services should be improved in terms of quality of service and treatment, and the doctors should be taken care of the patient and give them response in systematic way. The staffs, nurses and midwifes attend the patients in right time of the right place. And this study suggest government should take initiative improve the quality of the government hospitals and its infrastructure facilities. And avoiding noise pollutions and disturbance in general wards. Patient feedback should be collected without fail so as to know the areas to be improved to maximize the customer satisfaction. Patient's rights and responsibilities chart can be displayed in wards even in local language also

V. Conclusion

Assessing the satisfaction of patients is simple because of the way evaluation of hospitals service. The percent study reveals patients perception towards service quality of government hospitals. Because service is the intangible aspect we cannot see and touch it, government hospitals played on very important role in major and minor health problem. Most of the patients were satisfied regarding free medical treatment, cost and free medicines, quality of service. Because today's consumer environment looking forward best price, good infrastructure facilities, technological improvement and availability, best payment options and good quality of service. And half of the patients were dissatisfied in government hospitals regarding insufficient doctors, infrastructure, and lack technological improvements. There were no proper responsiveness and quality of service. In maximum of the patient during the study period reveals were satisfied with good quality of service available in government hospitals.

Reference Source: District Of The Nilgiris District Administration, Last Updated on 25-02-2012 - E-mail: collrnlg nic in Phone: 0423-2442344 © District

Administration The Nilgiris, Tamilnadu, India. State health society, Tamil Nadu – established of 17 neonatal intensive care units (NICUS sick neonatal care units and health and family welfare EAPII /2 Dept dated 13 / 05 / 2013., District Of The Nilgiris District Administration, Last Updated on 25-02-2012 - E-mail: collrnlg nic in Phone :0423-2442344 © District Administration The Nilgiris, Tamilnadu, India. Balaji. B, Services Marketing and Management, Third Edition, S. Chand & Co, New Delhi.

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Cutting Edges of Science Edification: The Power of Economy

By Akbar Nikkhah
University of Zanjan, Iran

Abstract- This article innovatively elaborates on two entirely useful and harmful angles of science education in building growing economy nationally and globally. Static economy-demolishing schooling versus accountable and moral economy-flourishing mentorship is delineated from a science edification philosophy. Generating moral figures and perceptions from scientific and educational discoveries must be globally pursued. This is key to maintaining an expanding nature for science-founded economy and to establishing national and international peace and prosperity.

Keywords: *science, education, economy, global business, finance.*

GJMR-K Classification: *NLMC Code: WY 18.5, WZ 18.2*

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Cutting Edges of Science Edification: The Power of Economy

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Keywords: science, education, economy, global business, finance.

I. Innovative Edges of Science-Founded Economy Policies

The objective of this economy policy article was to describe innovative edges of science education for quality economy and life in the new postmodern rising era. Science and technology education in the postmodern time will not be counted merely on the basis of practical or purely hypothetical realizations and achievements. The capability to preserve embryonic tendencies in science and technology education will rely on generating the type of scientists and researchers who can capacitate education and creation of more and not less qualified than own.

Such new generations of science and technology educators and mentors are not simply characterized by teaching and research proficiencies [1,2]. They must be crucial edges whose exclusivities are embraced with merits in growth and education of science-founded economy mentorship concepts. Mentorship is an art whereas schooling is a limited occupation. Schooling is transferring knowledge to learners whereas moral mentorship is constructing, capturing and exchanging insights in science and technology. Schooling teaches learning and education of self, but mentorship creates capacities to train and mentor minds and bodies of else [3,4].

From a global perspective, schooling develops learners that finally graduate whereas mentorship generates pragmatic influencers that move on forever in the learning path until after even they bodily die. Schooling requires giving back the teacher only the materials that were educated whereas mentorship directs minds to create innovative philosophies. Schooling is almost a one-way correspondence, but mentorship is an innovative and creative medium for idea and perspective exchange. Schooling does not tolerate mentees to question teachers and the way they think and teach, whereas mentorship truly welcomes pragmatic learners to challenge mentors' thoughts [5-7].

Questions and challenges are the means whereby learners can experience science communication with others and observe critical education of others. Schooling is restricted to habitual times whereas mentorship defines a circadian lifetime commitment [8].

Schoolers are employees whereas mentors serve as employers. Schools employ teachers whereas mentors employ science and technology. Schooling encourages learning whereas mentorship creates mentors capable of building everevolving education roads. Schoolers tutor science whereas mentors generate innovative science producers. Schooling is an already-known task whereas mentorship is a creative and challenging commitment. The most important results of schooling are science discoveries whereas among the utmost consequences of mentorship are brilliant minds and philosophies that are created within mentors' contemplations towards creating the scientists that fuel ongoing discoveries.

Schooling may expand the existing knowledge somewhat, whereas mentorship does develop scientists who collectively make considerable progress in the innovation of new groundbreaking insights. Knowledge is the end but insight is just the inauguration to commence and create novel authorities of contemplation. In a nutshell, schooling is an instant line whereas mentorship is a well-shaped thorough concept of pragmatism that resembles an encircle surrounding a central negligible tip of discoveries. However, the adjacent surrounding area encompasses the morality in creating leading-edge mentors of science education. Certainly, schooling causes knowledge accumulation that conceptually and pragmatically adds nothing to the literature but the complexity, whereas mentorship integrates science into safe and quality economy and life policies.

II. Conclusions

To sum, schooling complicates science whereas mentorship simplifies understanding of

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economy and life. Accountable mentorship instead of irresponsible schooling will persist to serve as a crucial cutting edge science for today's education towards quality economy and life. Such a pragmatic mentorship will immensely help create global moral figures and concepts from scientific discoveries. These perceptions are a crucial beginning to global cooperations in establishing reciprocal understanding and sturdy national-international peace and prosperity.

III. Acknowledgments

The Ministry of Science Research and Technology, National Elite Foundation, and University of Zanjan thanked for supporting the author's global initiatives and innovative programs of optimizing science edification in the new millennium.

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Intranasal Nystatin Therapy in Patients with Chronic Illness Associated with Mold and Mycotoxins

By Joseph H. Brewer, Dennis Hooper & Shalini Muralidhar
University of Missouri - Kansas City, United States

Abstract- We have previously reported that patients with chronic illness frequently had a history of prior exposure to water damaged buildings (WDB) and mold. These patients were found to have elevated levels of mycotoxins in the urine. We postulated that the mycotoxin producing molds colonize the sinuses of these patients and lead to chronic symptoms. In a recent observational analysis of patients treated with intranasal antifungal agents, either amphotericin B (AMB) or itraconazole (ITR), we showed that 94% of these patients improved clinically (AMB group). We also found that the urine mycotoxin levels decreased substantially in patients that improved on therapy. However, AMB was associated with local (nasal irritation) adverse effects (AE) in 34% of the cases, which resulted in discontinuation of therapy. The present study expands these treatment observations in which patients intolerant to AMB were treated with intranasal nystatin (NYS). We found very promising improvements with this agent as well. No local (nasal) AE were seen with NYS.

Keywords: toxic mold, mycotoxin, chronic fatigue syndrome, intranasal antifungal therapy, nystatin.

GJMR-K Classification: NLMC Code: QW 630.5.M9

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Joseph H. Brewer [α], Dennis Hooper [σ] & Shalini Muralidhar [ρ]

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Keywords: toxic mold, mycotoxin, chronic fatigue syndrome, intranasal antifungal therapy, nystatin.

I. Introduction

Exposure to WDB, mycotoxin producing molds and mycotoxins may result in numerous health problems [1, 2]. We have studied the association of mycotoxins and chronic illness, the prototype being chronic fatigue syndrome (CFS) [2]. The vast majority of these patients recalled an exposure to WDB and mold. In the study noted, we found thataflatoxins (AT), ochratoxin A (OT) and/or macrocyclic trichothecenes (MT) were present in 93% of CFS cases utilizing a sensitive and specific assay for these mycotoxins as opposed to a healthy control group in which all urine assays were negative for the mycotoxins [2]. The persistence of illness years after leaving the point of exposure, as well as the presence of mycotoxins in the urine assay, suggested internal mold may be present and represents a reservoir for ongoing internalmycotoxin production, either continuous or intermittent.

Furthermore, we described the concept that the sinuses may be the major internal reservoirs where the mold is harbored [3]. This presence of mold can lead to the generation of mycotoxins internally. A recent observational analysis of intranasal therapy with either AMB or ITR has been published indicating excellent improvements in the patients that did not have AE and remained on therapy [4]. Treatment of nasal colonization with AMB, however, was associated with a significant number of local AE (34%), which resulted in discontinuation. For these patients, we had been looking for alternative intranasal antifungal therapy regimens that would be effective and better tolerated. As mentioned in the discussion section of the prior paper, intranasal NYS appeared to be an attractive alternative, however, it was not available at the time those patients were treated. Since that analysis was done, an intranasal preparation of NYS was developed that could be delivered into the nose and sinuses via an atomizer. The present analysis, expand our findings with intranasal therapy in a group of patients that were treated with intranasal NYS.

II. Materials and Methods

a) Patients

The patients reported herein were largely a subgroup of the prior patients, thus, the patient demographics and characteristics have been previously reported [4]. All patients discussed here fulfilled the same criteria as previously published [4]. The majority of the current cases came from the group that developed local AE with AMB and discontinued the therapy. There were a few patients that were “new starts” on intranasal therapy. These patients were offered either AMB or NYS and opted for NYS.

The rationale for the treatment with intranasal antifungal therapy was outlined in our previous paper regarding the role of naso-sinus colonization with toxic mold [3]. The concepts relating to such therapy were discussed with thesepatients at the time of a clinic visit. In patients that wanted to proceed with NYS therapy, a prescription was then sent to ASL Pharmacy (see below).The patients were typically seen in follow up within three to six months after initiating therapy. All patients reported herein were seen at least once in follow up after they started therapy.

Institutional Review Board exemption was previously granted after review of these treatments by

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Solutions IRB (Protocol #1FEB15-40). This was based on the fact that these patients were treated as part of their clinical management in the medical practice and not deemed to represent human subjects research.

b) Treatment

The therapy prescribed consisted of intranasal medication(s) administered via an atomizer device. About half of these patients administered an agent (CHE) used to break up biofilm (which was described in our previous paper) along with NYS. The remainder of the patients used intranasal NYS alone in the atomizer without the CHE. Prescriptions were sent to ASL Pharmacy, Camarillo, California and then dispensed to the patients by ASL. The intranasal antifungal agent in this report was NYS. Each capsule contained 50,000 units of NYS admixed with xylitol as an excipient. The capsule contents were mixed by the patient with 5 mL of either saline solution or distilled water and then added to the atomizer. All intranasal applications were delivered via the NasaTouch atomizer device provided to the patient by ASL Pharmacy. Patients administered the atomizer treatments once daily for each agent. If the patients were receiving CHE along with NYS, they were advised to administer the CHE first, followed by the NYS. Patients generally remained on therapy unless they discontinued it due to an AE. The period of treatment observation reported herein ran for 12 months, June 2014 to June 2015.

c) Clinical assessments

The clinical assessments followed the same criteria as previously reported, including assessments of clinical improvements and AE. [4].

d) Mycotoxin testing

The urine mycotoxin testing of specimens were performed at RealTime Laboratories. The details of the assay have been previously described [2].

III. Results

During the 12-month period of observation, 80 patients initiated therapy with NYS (with or without CHE). It is worth stating at this point that no discernable differences were noted with or without the CHE. Thus, the data is not presented separately and aggregated together. The clinical results are summarized in Table 1. Six patients that received NYS had repeat mycotoxin urine testing done. Those results are found in Table 2. Additionally, two patients discontinued therapy after improvement and had repeat urine mycotoxin testing after discontinuation (one test was done 3 months after stopping therapy and the other at 4 months). The repeat testing on these two patients is summarized in Table 3.

Table 1 : Patients Treated with Nystatin (NYS)

Group	Number	%
NYS Total Patients	80	100
NYS Clinical Response: Improved*	58	73
NYS Local AE Total**	4	5
NYS Local AE Resulting in Discontinuation	2	2.5
NYS Systemic AE Total***	20	25
NYS Systemic AE Resulting in Discontinuation	8	10
NYS Continued Therapy & Improved	58	83

**Improvement defined in Methods section previously published [4], **Local AE defined in Methods section previously published [4], ***Systemic AE defined in Methods section, previously published [4]*

Table 2 : Subgroup of Patients on Therapy with Repeat Mycotoxin Assays

Rx	Imp	%	OT dec	%	MT dec	%	Total
NYS	6/6	100	5/6*	83	6/6*	100	6

*Rx: Treatment, Imp: improved, OT dec: ochratoxin A level decreased from baseline, MT dec: macrocyclic trichothecene level decreased from baseline, NYS: nystatin, *decreased down to a level of zero (OT 4/6, MT 2/6)*

Table 3 : Subgroup of Patients that Discontinued Therapy (after Improvement)

Rx	Imp	%	Relap	%	OT inc	%	MT inc	%
NYS	2/2	100	1/2	50	1/2	50	2/2	100

Rx: Treatment, Imp: improved, Relap: clinical relapse after discontinuation, OT inc: ochratoxin A level increased compared to baseline, MT inc: macrocyclic trichothecene level increased compared to baseline, NYS: nystatin

In summarizing the results from our patient observations, treatment with intranasal NYS resulted in clinical improvement (reduction in symptoms). In looking at the total group, 73% improved. Of the patients that remained on therapy without AE or tolerable AE (n = 70), 83% improved. Of the patients that improved and remained on therapy, 10 (14%) ranked their status as markedly improved (definition of markedly improved previously published) during this period of observation. At the time of evaluation (follow up clinic visit), the majority of patients reported ongoing, progressive improvement. Thus, the degree of improvement seemed to increase over time (data not shown).

Repeat urine testing for mycotoxins in six patients (Table 2) showed similar results to our prior study with AMB and ITR. OT and MT levels decreased in virtually all the cases (OT remained the same in one patient). As noted, in several patients the levels for both OT and MT decreased to zero.

Also, as we reported with AMB (and ITR) in our prior analysis, patients that went off therapy at 6 months or earlier, are prone to relapse. Although we only

assessed post-discontinuation urine mycotoxin testing in two cases, one showed increased levels of OT and both showed increased MT (even higher than baseline).

Systemic AE were the most common AE, occurring in 25% of the patients, which led to discontinuation of therapy in 8(10%). Local AE were uncommon, only seen in 5% of the cases (4 patients). Looking at these local AE cases more closely, all were on CHE. No patients reported local AE on NYS alone.

IV. Discussion

Exposure to WDB, in particular, toxic mold, has been associated with numerous adverse health consequences [1,2]. We have studied patients with chronic illness, with the prototype being CFS. We found the chronic illness was highly associated with exposure to WDB/mold in the past and the ongoing presence of mycotoxins, detected with a sensitive and specific urine assay [2]. As we analyzed these patients, it became apparent that many of the patients with chronic illness and the presence of mycotoxins could trace their illness to past exposure but not recent or present exposure. We postulated that these patients may have harbored internal mycotoxin producing mold species and that such mold was likely in the sinuses, embedded in biofilm. A review of the literature and patient data supporting this idea was previously published [3]. It seemed intuitive that therapies directed at reduction or elimination of this mold, could potentially lead to clinical improvements.

We previously reported the use of either intranasal AMB or ITR to see if we could reduce or eliminate the mold in the sinuses [4]. In that paper, we analyzed if such intranasal therapy would lead to symptomatic improvement.AMB was associated with clinical improvement in 94% of the cases that continued on therapy. Unfortunately, approximately one third of the patients that initiated therapy with AMB developed local AE severe enough that the therapy was discontinued. We also found good clinical responses with ITR but the numbers evaluated were much smaller (only 14 patients). We set out to determine if there were alternative therapies that would be effective but better tolerated. Intranasal NYS surfaced as an interesting option to explore [4, 5]. Although used for decades as a topical agent for yeast infections, NYS actually has good *in vitro* activity for molds [5]. Since NYS is a polyene antifungal agent (similar to AMB), it would be predicated to have similar effects. We postulated that there might be less local AE since topical NYS has been well tolerated for yeast infections of the oral cavity (thrush) [6].

Most of the patients reported herein were patients that were in the previous analysis but became intolerant to AMB secondary to local AE. Additionally, there was a smaller subset of the patients reported here that were starting intranasal antifungal therapy for the first time and opted for the NYS.

In the analysis reported herein, NYS was very promising. We found that 83% of the patients that remained on therapy (generally for 6 months minimum) improved clinically. Intranasal therapies with AMP and NYS were comparable in the two studies. NYS was very effective as a therapy for treating mold in the sinuses.

Repeat urine mycotoxin testing done in a small subset of these patients (n = 6) showed very similar results to our prior findings with AMB. The mycotoxins consistently decrease with intranasal therapy (in some cases the levels drop to zero). This drop in mycotoxin levels correlates very well with clinical improvement.

We also reported on two patients that discontinued therapy after approximately 6 months of therapy. One relapsed clinically and both showed rises in their urine mycotoxin levels after discontinuation of therapy (MT levels even higher than baseline).

Local AE were basically non-existent with NYS. The four patients that reported local AE in the group were all on the CHE. None of the cases that received NYS without CHE had local AE. Furthermore, when the CHE was stopped in the patients on both agents (NYS continued), the local AE resolved (data not shown).

Systemic AE are thought to represent "die off" reactions. This concept was addressed in the previous paper in which AMB and ITR was used as the intranasal therapy [4]. As discussed previously, we postulated that the systemic "die off" reactions were due to enhanced mycotoxin release when the therapy was initiated, as a direct result of the antifungal agent interacting with the mold/fungi in the sinuses. In an *in vitro* model, Reeves et al demonstrated increased synthesis and release of gliotoxin from *Aspergillus fumigatus* upon exposure to amphotericin B [7]. Since NYS is not absorbed systemically, we feel it is highly unlikely these AE were due to the medication but rather represented "die off" [6]. Thus, the NYS appears to be extraordinarily safe, in terms of any AE due to the drug itself. These "die off" reactions can be problematic, however. As noted above, these reactions led to discontinuation in 10% of the patients. It is of interest that we seemed to see more systemic AE with NYS than we noted previously with AMB. This may a bit misleading. We have noted that these systemic AE tend to occur early on in the course of therapy (data not shown). Since a high percentage of the AMB cases had local AE early on and stopped their therapy, we may have under estimated the number of systemic AE (discussed in the previous paper) [4]. Also, it should be noted that the majority of the systemic AE cases continued on therapy and it did not result in discontinuation (15 out of 25). We have subsequently taken the approach of reducing the dose or frequency of dosing with the NYS if the systemic AE occur and persist longer than a few days.

V. Conclusions

The data presented herein, extends and compliments our prior experience with intranasal antifungal therapy. Intranasal NYS appears to be a very effective and well-tolerated alternative. A very high percentage of patients improved clinically and urine mycotoxin levels decreased on therapy. In terms of AE, the local AE were essentially absent when NYS was used. We did see systemic AE ("die off" reactions) in about one fourth of the NYS cases, however only 10% discontinued therapy. The goal of intranasal antifungal therapy in these types of patients is reduction or elimination of the mycotoxin producing molds in the sinuses. We now have several alternative agents to offer for such therapy with promising results.

VI. Future Directions

There continues to be a number of unanswered questions with regard to intranasal antifungal therapy in these types of patients. As noted in our prior paper, the agent of choice, proper dose, frequency of dosing, most effective way to administer the therapy and duration of therapy have not been fully elucidated. Additionally, the current analysis raises the question as to whether a "biofilm buster" is necessary. AMB (and presumably NYS, since it is a similar compound) can penetrate biofilm [8]. Thus, the question of using the antifungal alone (particularly to reduce AE) as compared to using the antifungal along with an agent to break up the biofilm in the sinuses, remains unanswered.

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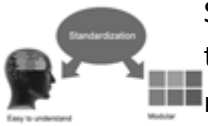

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Manuscript submission is a systematic procedure and little preparation is required beyond having all parts of your manuscript in a given format and a computer with an Internet connection and a Web browser. Full help and instructions are provided on-screen. As an author, you will be prompted for login and manuscript details as Field of Paper and then to upload your manuscript file(s) according to the instructions.

To avoid postal delays, all transaction is preferred by e-mail. A finished manuscript submission is confirmed by e-mail immediately and your paper enters the editorial process with no postal delays. When a conclusion is made about the publication of your paper by our Editorial Board, revisions can be submitted online with the same procedure, with an occasion to view and respond to all comments.

Complete support for both authors and co-author is provided.

4. MANUSCRIPT'S CATEGORY

Based on potential and nature, the manuscript can be categorized under the following heads:

Original research paper: Such papers are reports of high-level significant original research work.

Review papers: These are concise, significant but helpful and decisive topics for young researchers.

Research articles: These are handled with small investigation and applications

Research letters: The letters are small and concise comments on previously published matters.

5.STRUCTURE AND FORMAT OF MANUSCRIPT

The recommended size of original research paper is less than seven thousand words, review papers fewer than seven thousands words also.Preparation of research paper or how to write research paper, are major hurdle, while writing manuscript. The research articles and research letters should be fewer than three thousand words, the structure original research paper; sometime review paper should be as follows:

Papers: These are reports of significant research (typically less than 7000 words equivalent, including tables, figures, references), and comprise:

(a)Title should be relevant and commensurate with the theme of the paper.

(b) A brief Summary, "Abstract" (less than 150 words) containing the major results and conclusions.

(c) Up to ten keywords, that precisely identifies the paper's subject, purpose, and focus.

(d) An Introduction, giving necessary background excluding subheadings; objectives must be clearly declared.

(e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition; sources of information must be given and numerical methods must be specified by reference, unless non-standard.

(f) Results should be presented concisely, by well-designed tables and/or figures; the same data may not be used in both; suitable statistical data should be given. All data must be obtained with attention to numerical detail in the planning stage. As reproduced design has been recognized to be important to experiments for a considerable time, the Editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned un-refereed;

(g) Discussion should cover the implications and consequences, not just recapitulating the results; conclusions should be summarizing.

(h) Brief Acknowledgements.

(i) References in the proper form.

Authors should very cautiously consider the preparation of papers to ensure that they communicate efficiently. Papers are much more likely to be accepted, if they are cautiously designed and laid out, contain few or no errors, are summarizing, and be conventional to the approach and instructions. They will in addition, be published with much less delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and to make suggestions to improve briefness.

It is vital, that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

Format

Language: The language of publication is UK English. Authors, for whom English is a second language, must have their manuscript efficiently edited by an English-speaking person before submission to make sure that, the English is of high excellence. It is preferable, that manuscripts should be professionally edited.

Standard Usage, Abbreviations, and Units: Spelling and hyphenation should be conventional to The Concise Oxford English Dictionary. Statistics and measurements should at all times be given in figures, e.g. 16 min, except for when the number begins a sentence. When the number does not refer to a unit of measurement it should be spelt in full unless, it is 160 or greater.

Abbreviations supposed to be used carefully. The abbreviated name or expression is supposed to be cited in full at first usage, followed by the conventional abbreviation in parentheses.

Metric SI units are supposed to generally be used excluding where they conflict with current practice or are confusing. For illustration, 1.4 l rather than 1.4 × 10-3 m3, or 4 mm somewhat than 4 × 10-3 m. Chemical formula and solutions must identify the form used, e.g. anhydrous or hydrated, and the concentration must be in clearly defined units. Common species names should be followed by underlines at the first mention. For following use the generic name should be constricted to a single letter, if it is clear.

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Abstract, used in Original Papers and Reviews:

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Many researchers searching for information online will use search engines such as Google, Yahoo or similar. By optimizing your paper for search engines, you will amplify the chance of someone finding it. This in turn will make it more likely to be viewed and/or cited in a further work. Global Journals Inc. (US) have compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Key Words

A major linchpin in research work for the writing research paper is the keyword search, which one will employ to find both library and Internet resources.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy and planning a list of possible keywords and phrases to try.

Search engines for most searches, use Boolean searching, which is somewhat different from Internet searches. The Boolean search uses "operators," words (and, or, not, and near) that enable you to expand or narrow your affords. Tips for research paper while preparing research paper are very helpful guideline of research paper.

Choice of key words is first tool of tips to write research paper. Research paper writing is an art.A few tips for deciding as strategically as possible about keyword search:

- One should start brainstorming lists of possible keywords before even begin searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in research paper?" Then consider synonyms for the important words.
- It may take the discovery of only one relevant paper to let steer in the right keyword direction because in most databases, the keywords under which a research paper is abstracted are listed with the paper.
- One should avoid outdated words.

Keywords are the key that opens a door to research work sources. Keyword searching is an art in which researcher's skills are bound to improve with experience and time.

Numerical Methods: Numerical methods used should be clear and, where appropriate, supported by references.

Acknowledgements: Please make these as concise as possible.

References

References follow the Harvard scheme of referencing. References in the text should cite the authors' names followed by the time of their publication, unless there are three or more authors when simply the first author's name is quoted followed by et al. unpublished work has to only be cited where necessary, and only in the text. Copies of references in press in other journals have to be supplied with submitted typescripts. It is necessary that all citations and references be carefully checked before submission, as mistakes or omissions will cause delays.

References to information on the World Wide Web can be given, but only if the information is available without charge to readers on an official site. Wikipedia and Similar websites are not allowed where anyone can change the information. Authors will be asked to make available electronic copies of the cited information for inclusion on the Global Journals Inc. (US) homepage at the judgment of the Editorial Board.

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For scanned images, the scanning resolution (at final image size) ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs) : >350 dpi; figures containing both halftone and line images: >650 dpi.

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TECHNIQUES FOR WRITING A GOOD QUALITY RESEARCH PAPER:

1. Choosing the topic: In most cases, the topic is searched by the interest of author but it can be also suggested by the guides. You can have several topics and then you can judge that in which topic or subject you are finding yourself most comfortable. This can be done by asking several questions to yourself, like Will I be able to carry our search in this area? Will I find all necessary recourses to accomplish the search? Will I be able to find all information in this field area? If the answer of these types of questions will be "Yes" then you can choose that topic. In most of the cases, you may have to conduct the surveys and have to visit several places because this field is related to Computer Science and Information Technology. Also, you may have to do a lot of work to find all rise and falls regarding the various data of that subject. Sometimes, detailed information plays a vital role, instead of short information.

2. Evaluators are human: First thing to remember that evaluators are also human being. They are not only meant for rejecting a paper. They are here to evaluate your paper. So, present your Best.

3. Think Like Evaluators: If you are in a confusion or getting demotivated that your paper will be accepted by evaluators or not, then think and try to evaluate your paper like an Evaluator. Try to understand that what an evaluator wants in your research paper and automatically you will have your answer.

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11. Revise what you wrote: When you write anything, always read it, summarize it and then finalize it.

12. Make all efforts: Make all efforts to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in introduction, that what is the need of a particular research paper. Polish your work by good skill of writing and always give an evaluator, what he wants.

13. Have backups: When you are going to do any important thing like making research paper, you should always have backup copies of it either in your computer or in paper. This will help you to not to lose any of your important.

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16. Use proper verb tense: Use proper verb tenses in your paper. Use past tense, to present those events that happened. Use present tense to indicate events that are going on. Use future tense to indicate future happening events. Use of improper and wrong tenses will confuse the evaluator. Avoid the sentences that are incomplete.

17. Never use online paper: If you are getting any paper on Internet, then never use it as your research paper because it might be possible that evaluator has already seen it or maybe it is outdated version.

18. Pick a good study spot: To do your research studies always try to pick a spot, which is quiet. Every spot is not for studies. Spot that suits you choose it and proceed further.

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20. Use good quality grammar: Always use a good quality grammar and use words that will throw positive impact on evaluator. Use of good quality grammar does not mean to use tough words, that for each word the evaluator has to go through dictionary. Do not start sentence with a conjunction. Do not fragment sentences. Eliminate one-word sentences. Ignore passive voice. Do not ever use a big word when a diminutive one would suffice. Verbs have to be in agreement with their subjects. Prepositions are not expressions to finish sentences with. It is incorrect to ever divide an infinitive. Avoid clichés like the disease. Also, always shun irritating alliteration. Use language that is simple and straight forward. put together a neat summary.

21. Arrangement of information: Each section of the main body should start with an opening sentence and there should be a changeover at the end of the section. Give only valid and powerful arguments to your topic. You may also maintain your arguments with records.

22. Never start in last minute: Always start at right time and give enough time to research work. Leaving everything to the last minute will degrade your paper and spoil your work.

23. Multitasking in research is not good: Doing several things at the same time proves bad habit in case of research activity. Research is an area, where everything has a particular time slot. Divide your research work in parts and do particular part in particular time slot.

24. Never copy others' work: Never copy others' work and give it your name because if evaluator has seen it anywhere you will be in trouble.

25. Take proper rest and food: No matter how many hours you spend for your research activity, if you are not taking care of your health then all your efforts will be in vain. For a quality research, study is must, and this can be done by taking proper rest and food.

26. Go for seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

27. Refresh your mind after intervals: Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

28. Make colleagues: Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

29. Think technically: Always think technically. If anything happens, then search its reasons, its benefits, and demerits.

30. Think and then print: When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

31. Adding unnecessary information: Do not add unnecessary information, like, I have used MS Excel to draw graph. Do not add irrelevant and inappropriate material. These all will create superfluous. Foreign terminology and phrases are not apropos. One should NEVER take a broad view. Analogy in script is like feathers on a snake. Not at all use a large word when a very small one would be sufficient. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Amplification is a billion times of inferior quality than sarcasm.

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33. Report concluded results: Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

34. After conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

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Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.

Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

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To make a paper clear

· Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

· Use standard writing style including articles ("a", "the," etc.)

· Keep on paying attention on the research topic of the paper

· Use paragraphs to split each significant point (excluding for the abstract)

· Align the primary line of each section

· Present your points in sound order

· Use present tense to report well accepted

· Use past tense to describe specific results

· Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives

· Shun use of extra pictures - include only those figures essential to presenting results

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Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.

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The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript--must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

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- Fundamental goal
- To the point depiction of the research
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- Significant conclusions or questions that track from the research(es)

Approach:

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- Center on shortening results - bound background information to a verdict or two, if completely necessary
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The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
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Approach:

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Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

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- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

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- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

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The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.

Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

Discussion:

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References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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