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Editorial Board

Correspondence

Editor in Chief, Healthline Journal, Community Medicine Department, GCS Medical College, Hospital and Research Center, Opp. DRM Office, Nr. Chamunda Bridge, Naroda Road, Ahmedabad-380025, Gujarat. Telephone: 07966048000 Ext. No. 8351, Email: editorhealthline@gmail.com.

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Frailty and Aging

Naresh Makwana

Professor, Community Medicine Department, Shree M.P.Shah Government Medical College, Jamnagar, Gujarat, India

Correspondence : Dr. Naresh Makwana, E mail: drnareshmakwana@gmail.com

Introduction:

With the advancement in the health technologies, life expectancy at birth is improving throughout the developed and even, in the developing world. Along with that, aged population is also growing rapidly worldwide. Globally, the number of older persons (aged 60 years or over) is expected to more than double, from 841 million people in 2013 to more than 2 billion in 2050. Currently, near around 65-70% of the world's older adults live in developing countries. Further, UN report expects that, by 2050, nearly 8 in 10 of the world's older population will live in the less developed regions.[1] This has profound implications for the planning and delivery of health and social care.

The most problematic expression of population ageing is the clinical condition of frailty. Frailty results from age-related decline in the efficiency of physiological systems, which makes the person vulnerable to sudden health status changes triggered by minor stressor events.[2] Frailty is a state of increased vulnerability to adverse outcomes, such as falls, functional decline, hospitalization and death. As the clinical importance of the concept of frailty is increasingly recognized, it is of major importance to identify frail older adults.[3] The present research topic represents a timely addition to the burgeoning body of evidence which aims to provide fresh perspectives in our understanding of the frailty phenomena occurring with aging.[4]

What is Frailty?

While policymakers, practitioners and researchers in many countries have acknowledged that frailty is a major public health problem, there is substantial disagreement about definitions of frailty and the extent and scope of public and private responsibility in the prevention and management of frailty. Conceptual models for understanding frailty both implicitly and explicitly suggest that it is a state of reduced physiological reserves associated with ageing that affects an individual's capacity for functional independence. Fried (1994) refers to frailty as a wasting syndrome of advanced old age, while Rockwood et al. (1994) base their model of frailty on a model of breakdown among older people.[5]

Frailty is an indicator of health status in old age.[6] It is a clinical state of increased vulnerability resulting from age-associated decline in reserve and function across multiple physiologic systems such that the ability to cope with every day or acute stressors is compromised.[7] This cumulative decline erodes homeostatic reserve until relatively minor stressor events trigger disproportionate changes in health status, typically a fall or delirium.[8]An overt state of frailty is believed to be preceded by behavioural adaptation made in response to declining physiologic reserve and capacity with which to meet environmental challenges. The causes of this loss of physiologic reserve are likely to be multi-factorial, including both environmental challenges (e.g., area deprivation) and intra-individual challenges (e.g., age-related physiologic changes).[7]

Lacking gold standard, one most widely used operational definition of frailty given by Fried et al viewed frailty as a clinical syndrome in which three or more of the following criteria were present: unintentional weight loss, self-reported exhaustion, weakness, slow walking speed, and low physical activity.[7, 8-10] Older people are most vulnerable to adverse outcome results from frailty. Longitudinal cohort study of 754 community dwelling older persons which lasted for 10 years exhibited that, in last years of life the most common condition leading to death was frailty (27.9%), followed by organ failure (21.4%), cancer (19.3%), other causes

(14.9%), advanced dementia (13.8%), and sudden death (2.6%).[11]

Burden of Frailty

The Operational definitions for frailty and inclusion and exclusion criteria varied between studies, which largely explained considerable variations in reported frailty prevalence rates of 4.0-59.1%. In case of phenotype model, the weighted average prevalence of pre-frailty was 44.2% and frailty was 9.9%. Frailty was statistically more prevalent in females (9.6%) than in males (5.2%). Frailty increases steadily with age.[8, 12]

Systematic review of frailty prevalence worldwide concluded that 10.7% of community-dwelling adults aged ⩾ 65 years were frail and 41.6% pre-frail.[13] In the United Kingdom, with the rising population of older adults (>64 years of age), frailty syndrome has increased from 12% in January 2005 to 14% in March 2013.[14] Data from Survey of Health, Aging and Retirement in Europe (SHARE) in 2004 covering more than 10 European countries, showed prevalence of frailty and pre-frailty in 65+ age group as 17.0% (15.3 – 18.7) were frail and 42.3% (40.5 – 44.1) prefrail.[15] If we look at the low and middle income countries, the prevalence of frailty was much higher than that for developed countries.[16]

Frailty and Co-morbidity

Frailty is linked with many chronic debilitating diseases of old age and its prevalence differs with different diseases. Several studies have marked significant association of frailty with most non-communicable/chronic diseases. Inter-relationship between frailty, co-morbidity and disability was investigated in the Cardiovascular Health Study (CHS) population. Frailty and co-morbidity (defined as two or more of the following nine diseases: myocardial infarction; angina; congestive heart failure; claudication; arthritis; cancer; diabetes; hypertension; chronic obstructive pulmonary disease) was present in 46.2% of the population, frailty and disability (defined as the presence of restriction in at least one activity of daily living) was present in 5.7%, and the combination of frailty, disability and co-morbidity was present in 21.5% of the study group. Importantly, frailty was present without co-morbidity or disability in 26.6% of the study group. This finding provides support for frailty as an independent concept, distinct from co-morbidity and disability.[8]

Frailty Tools

There are numerous tools available to measure each component of frailty in older persons. Most commonly used tool to examine leg strength is repeated chair stand test, timed up and go test to check mobility, balance test to look for static balance, walk test examining gait speed and so on. These tools help the investigator to identify the person having pre-frail or frail criteria. Presence of any two out of five criteria keeps the person in pre-frail category, whereas presence of three or more criteria will categorize the person as frail as per Fried's phenotypical model of frailty.[7] Another frailty measurement tool, Frailty Index (FI), was developed based on cumulative deficit model underpinning the Canadian Study of Health and Aging (CSHA) Frailty Index.[8] The FI was a simple calculation of the presence or absence of each variable as a proportion of the total (e.g. 20 deficits present out of a possible 92 gives a FI of 20/92 = 0.22). Thus frailty is defined as the cumulative effect of individual deficits - 'the more individuals have wrong with them, the more likely they are to be frail.[7, 17] The British Frailty Index has also recently been developed.[18] It was argued that compared to Fried's Frailty phenotype, Frailty Index (FI) is a more sensitive predictor of adverse health outcomes due to its finer graded risk scale and its robustness in clinical inferences with regard to numbers and actual composition of items in FI.[19]

The Frail Elderly Functional Questionnaire (19 items) was identified as a potential outcome measure for frailty intervention studies as it is suitable for use by telephone or proxy, valid and reliable[20], and is sensitive to change[21]. The Groningen Frailty Indicator[22] and the Tilburg Frailty Indicator[23] are simple and similar questionnaire based approaches to detecting people with frailty.

The Edmonton Frail Scale is a multi-dimensional assessment instruments and a test for cognitive

impairment.[24] Comprehensive Geriatric Assessment (CGA) has become the internationally established method to assess older people in clinical practice. It is a multidisciplinary diagnostic process to determine an older person's medical, psychological and functional capability to develop a plan for treatment and follow up.[17, 25]

Role of Pharmacological agents in Frailty

Few pharmacological agents have been investigated in frailty. Angiotensin Converting Enzyme (ACE) inhibitors have been demonstrated to improve the structure and biochemical function of skeletal muscle[26] and there is evidence that ACE inhibitors may halt or slow the decline in muscle strength in older age[27] and improve exercise capacity and quality of life.[28] Testosterone improves muscle strength but also increases adverse cardiovascular and respiratory outcomes.[8] Low vitamin D levels have been associated with frailty and vitamin D has been demonstrated to improve neuromuscular function. Although vitamin D prescription for older people who are deficient may reduce falls and use of calcium/vitamin D supplements for older people in long-term care can reduce fractures, the general use of vitamin D as treatment for frailty remains controversial.[8]

Prevention of frailty

Frailty can be diagnosed at the earliest to avert its consequences. It is frequently observed that after crossing their sixty, most of people want relaxation when their children are ready to take their roles. However, this relaxation for prolonged period makes them sedentary and they may become pre-frail. Cells in our body are continuously regenerated and this process requires proper nutrition, regular physical activity and healthy life-style. As the age advances, individual compromises in his daily physical activity that affects normal body function, metabolism and endocrine activity ultimately leading to frailty. To mitigate frailty, one has to remain active physically, mentally and socially.

Reducing the prevalence or severity of frailty is likely to have large benefits for the individual, their families and for society. Several approaches have been investigated in clinical trials. Nutritional interventions may have potential to address the impaired nutrition and weight loss of frailty. However, there is a paucity of evidence. Exercise has physiological effects on the brain, endocrine system, immune system and skeletal muscle.[8] Three systematic reviews of home-based and group-based exercise interventions for frail older people concluded that exercise can improve outcomes of mobility and functional ability.[29-31]

Scope and Research

Researchers are expected to explore various aspects of frailty and mechanism of its development. Frailty is an emerging geriatric syndrome and new collaborative and interdisciplinary research projects are needed to detect and severity grade the frailty, so that it forms the part of routine clinical practice. The use of pharmacological agents for the prevention and treatment of frailty is one of the important areas for future research.

Conclusion

Frailty is a vital issue in geriatric health care and is also a crucial factor in the hospitalization of geriatric population. Identifying and assessing frailty at the earliest can reduce risk of frequent hospitalization among aged people and help them to live happy and independent healthy life.

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Severe Acute Malnutrition in Children: Management in Community

Sunil Nayak[1], Vaibhav Gharat[2]

[1] Pofessor & Head, [2]Assistant Professor, Department of Community Medicine, GMERS Medical College, Valsad, Gujarat, India

Correspondence : Dr. Sunil Nayak, E mail: drsunilnayak@gmail.com

Introduction:

Malnutrition is a general term of under nutrition resulting from inadequate consumption, poor absorption or excessive loss of nutrients, but the term can also encompasses over nutrition, resulting from excessive intake of specific nutrients. Undernutrition is one of the most concerning health and development issues in India as in other parts of the world. Undernutrition encompasses stunting (chronic malnutrition), wasting (acute malnutrition) and deficiencies of micronutrients (essential vitamins and minerals). The high mortality and disease burden resulting from under nutrition call for urgent implementation of interventions to reduce their occurrence and this would include determined action on the social determinants of under nutrition. [1]

National Family Health Survey- 4 (NFHS-4) shows that the proportion of children who are stunted or underweight increases rapidly with the child's age from birth to age 20-23 months; peaking at age 20 months. Even during the first six months of life, when most infants are breastfed, 20-30 percent of children are underweight. It is notable that by age 6-23 months, when many children are being weaned from breast milk, 38.4 percent of children are stunted and 7.5% are severely underweight. [2]

Wasting in individual children and population group can change rapidly and shows marked seasonal patterns associated with changes in food availability or disease prevalence to which it very sensitive. A wasted child has a weight for height Z score that at least two standard deviation (-2SD) below the median for the WHO Child Growth Standards. As per WHO fact sheet of September 2014, malnourished children, particularly those with Severe Acute Malnutrition have a higher risk of death from common childhood illness such as diarrhoea, pneumonia and malaria. Nutrition related factors contribute to about 45% of deaths in children under five years of age. Acute malnutrition is classified into severe acute malnutrition (SAM) and moderate acute malnutrition (MAM) according to severity of malnutrition.[1]

Severe Acute Malnutrition (SAM) is both a medical and social disorder. The medical problem is due to the social problems at home. Incorrect breast feeding practices, late introduction of complementary feeds, inappropriate foods and feeding practices, feeding diluted feeds containing less amount of nutrients, repeated cases of diarrhoea, acute respiratory infections, malaria and measles. SAM increases significantly the risk of death in children under five years of age. It can be direct cause of child death by increasing the case fatality rate in children suffering from common illnesses such as diarrhoea and pneumonia. Children who are severely wasted are 9 times more likely to die than well-nourished children. SAM children are at greater risk of mortality due to severe depletion of fat and muscles of body with compromised immunity leads to recurrent morbidity. To prevent morbidity and mortality various means of management and interventions for SAM children are essential. [1]

Severe Acute Malnutrition

Acute malnutrition is a condition resulting from a nutritional deficit over a relatively short duration of time, and Severe Acute Malnutrition is an exacerbation of symptoms. Severe Acute Malnutrition (SAM) is defined as a weight-for-height measurement of < -3SD or more below the mean National Centre for Health Statistics reference values, which is called “wasted”; the presence of bilateral pitting edema of nutritional origin, which is called “edematous malnutrition”, or a mid-upper-arm circumference of less than 115 mm in children age 6 months–5 years. [3]

Malnutrition in all forms is a serious public health problem in both developing and developed

countries worldwide, and is an underlying factor in 10-11 million deaths of children under 5 years old who die from preventable causes. [4] The most concentrated prevalence of acute malnutrition in children under 5 years old throughout the world can be found in Sub-Saharan Africa and South Asia with 9% and 15% of children population respectively. [3]

There are classically two forms of protein energy malnutrition: Kwashiorkor and Marasmus. Both forms are deficient in protein; however, their etiologies and clinical presentations are different. Marasmus, stemming from the Greek terminology meaning "withering" is classified as severe wasting.

In contrast to Marasmus, which is previously described as a chronic malnutrition of total calorie deprivation where the body is able to adapt the under nutrition for a prolonged period of time, Kwashiorkor is specifically a deprivation of protein in the child's diet and clinically presents in a much different way. This type of malnutrition is often an acute process as a result of rapidly decreasing nutrients. Children have severe diffuse edema, dry skin lesions as well as lethargy and liver malfunction. Commonly, children globally will have a mixture of both forms of protein energy malnutrition and will present with Marasmus Kwashiorkor. This presentation is a combination of abdominal edema and extremity wasting. Severe acute malnutrition is a major area of importance globally causing millions of preventable deaths. In order to address this epidemic, identifying the risk factors that lead to the development of this illness provide a foundation to remedy the issue. Many studies have evaluated numerous risk factors associated with SAM.

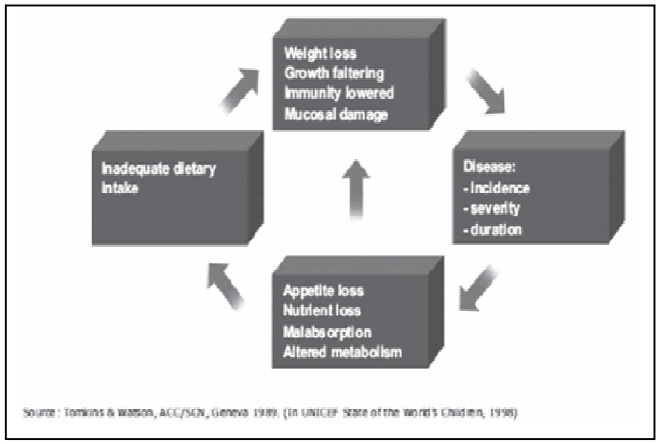
The burden of under-nutrition among under-five children has not changed much even though various intervention programs are in operation in India. Current changing dietary patterns are also affecting the nutrition status of under-five children resulting in increased prevalence of adult non-communicable diseases such as obesity, diabetes, hypertension and coronary heart disease.

Malnutrition in children under the age of 5 years

Substantial global progress has been made in reducing child deaths since 1990. The total number of under-5 deaths worldwide has declined from 12.6 million in 1990 to 5.6 million in 2016 – 15000 every day compared with 35 000 in 1990. Since 1990, the global under-5 mortality rate has dropped 56%, from 93 deaths per 1000 live births in 1990 to 41 in 2016. [5]

Although the world as a whole has been accelerating progress in reducing the under-5 mortality rate, disparities exist in under-5 mortality across regions and countries. Sub-Saharan Africa remains the region with the highest under-5 mortality rate in the world, with 1 child in 13 dying before his or her fifth birthday. Inequity also persists within countries geographically or by social-economic status. The latest mortality estimates by wealth quintile show that in 99 low and middle income countries, under-5 mortality among children born in the poorest households is on average twice that of children born in the wealthiest households. Eliminating this gap between mortality in the poorest and wealthiest households would have saved 2 million lives in 2016. [5]

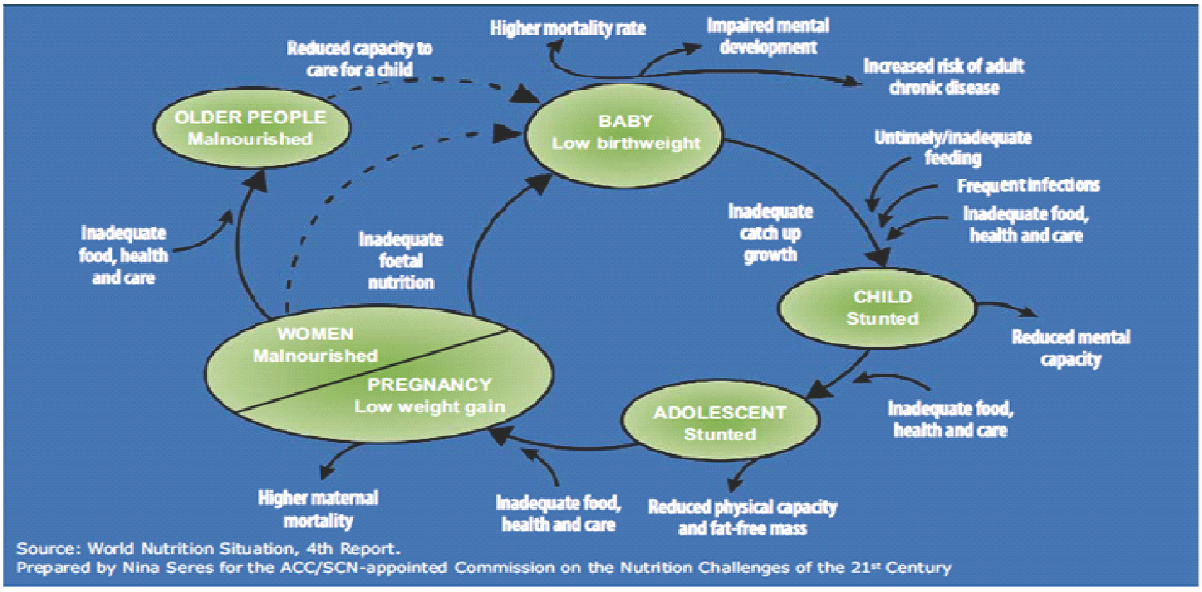
Figure 1: Interactions between malnutrition and disease



More than half of under-5 child deaths are due to diseases that are preventable and treatable through simple, affordable interventions. Strengthening health systems to provide such interventions to all children will save many young lives. [5]

Malnourished children, particularly those with severe acute malnutrition, have a higher risk of death from common childhood illness such as diarrhoea, pneumonia, and malaria. Nutrition-related factors contribute to about 45% of deaths in children under 5 years of age. [5]

Figure 2: Life course and intergenerational effects of malnutrition



In 2013, an estimated 2.9 million children underfive were admitted globally for treatment of severe acute malnutrition (SAM). This figure represents significant progress when compared with just over 1 million reported during 2009 (UNICEF Nutrition Section 2013) yet is clearly insufficient when compared to the global burden of 17 million children affected by SAM (UNICEF, WHO, World Bank 2014). [6] Children with SAM are nine times more likely to die than well-nourished children. In light of the growing understanding of the links between episodes of acute malnutrition and stunting, it is clear that prevention and treatment of acute malnutrition is critical to child survival and development.

Management

SAM children could be with medical complications and without complications, and this would form the basis of their management.

1. SAM children with complications require treatment at the facility level and needs hospital based care and management for stabilization and rehabilitation. Facility based management includes setting up and managing within the health facility premises, a functional space basically Nutrition Rehabilitation Center (NRC) and Child Malnutrition Treatment Center (CMTC) where these children are cared for.
2. SAM Children without complications could be treated at community level under the supervision of health functionaries, using standard feeding and treatment protocols.[7]

The Government of Gujarat has established NRCs/CMTCs at the District and sub-district levels for the management of children with SAM. The GoG has initiated community based management of SAM, using a standard therapeutic food and treatment protocols.

Nutrition Treatment

Children with SAM need more energy and protein so that in addition to their normal energy and protein requirement, lost body mass is rebuilt. The most effective therapy is based on the use of Ready-to-Use Therapeutic Foods (RUTF) enriched with essential vitamins and minerals that is designed to treat severe acute malnutrition in the Community-based Management of Acute Malnutrition (CMAM) programme. This energy-dense, RUTF can be given as take home ration and fed to the child as instructed by the Auxiliary Nurse Midwife (ANM)/ Accredited Social Health Activist (ASHA)/ Anganwadi Worker (AWW). RUTF is a medicinal food for children with SAM only. It should NOT be shared with any other child.

Mother/Caretaker should wash her/his and child's hands with soap before preparing the feed and feeding the child respectively. Then, the child should be given RUTF 6-8 times a day in small amounts. It should be given after breastfeeding the

child and before any other food. Plenty of clean drinking water should be offered along with RUTF. Sick children often do not like to eat. In such cases we should give small regular feeds of RUTF and encourage the child to eat often (if possible eight feeds a day). If the child is breastfed, breastfeed the child before giving RUTF and it should be continued for up to 2 years and beyond. If the child finishes the recommended amount of RUTF being given and is still hungry, s/he can be given any other foods (supplementary food, local homemade food). Always offer child plenty of clean water to drink while he/she is eating the RUTF. Keep food clean and covered. When a child has diarrhoea, do not stop feeding. Continue to feed RUTF and (if applicable) breast milk. If the child is able to eat on his/her own, then encourage him/her to do so.

During nutritional treatment along with RUTF child should also offered homemade food if s/he is hungry and demands for more food. RUTF will be given to child according to his/her age on daily basis for 8 weeks of treatment and after finishing the daily dose of RUTF child can be given the home made food like khichdi, suji kheer, rice and dal, chapatti, dal, vegetables and mashed fruits and vegetables also. Priority should be given to RUTF and then other food shou2ld be offered. Child should be provided plenty of water for drinking. Home food offered should be age appropriate in terms of consistency, texture, and safe.

Vitamin A

Vitamin A Deficiency (VAD) is the leading cause of preventable blindness in children and increases the risk of disease and death from severe infections. Children with SAM usually have deficiency of Vitamin A. Vitamin A deficiency also makes them prone to infections. RUTF given to children with SAM in the CMAM programme has Vitamin A. Still we need to give Vitamin A dose as per the protocol. If the child is not able to open his/her eyes or has night blindness, send him/her to NRC for further checkup. Vitamin A should not be given in oedema cases. If the child vomits within 15 minutes of administration of Vitamin A, don't give it again to child. Vitamin A should be given as per age of the child. Use marked spoon (1 ml, 2 ml) which is given with vitamin A bottle. Vitamin A solution should be ONLY administered with the spoon that accompanies the bottle.

Antibiotics (Amoxicillin)

The body defense system (immune function) does not work properly in children with SAM. The usual signs of infection such as fever are often absent and infections remain hidden. The important principle of community based management of SAM is that all children should be given oral amoxicillin. Amoxicillin is also effective in reducing overgrowth of bacteria in the Gastrointestinal (GI) tract which is commonly associated with severe acute malnutrition.

Albendazole

Albendazole is best absorbed after reconditioning of the GI tract with broad spectrum antibiotic. Albendazole is actively absorbed from the intestine and is more effective when the GI tract is free of other infections. It is therefore given on the second week (on 7^{th} Day). Albendazole is metabolized efficiently by children over twelve months; routine treatment should therefore be given only to children over twelve months of age. Children who have been transferred from the NRC should not receive routine medications that have already been administered in inpatient care.

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Assessment of Infrastructure and Logistics at Various Facilities Providing Sterilization Services in Rajkot District

Nirav K. Nimavat[1], Dhara N. Jahangirporia[2], Umed V. Patel[3]

[1]Assistant Professor, PSM Department, C.U. Shah Medical College, Surendranagar, Gujarat, India

[2]Tutor, PSM Department, Government Medical College, Surat, Gujarat, India

[3]Associate Professor, PSM Department, P.D.U. Government Medical College, Rajkot,Gujarat, India

Correspondence : Dr. Dhara N. Jahangirporia, E mail: jahangirporiadhara@gmail.com

Abstract :

Introduction : The National Population Policy 2000 and the Reproductive and Child Health (RCH) Programme Phase II emphasize the importance of achieving population stabilization and attaining the goal of replacement-level fertility. Sterilization services are largely being provided through a network of public and private sector facilities. **Objective:** To assess the infrastructure and logistics at various health facilities of Rajkot District where Sterilization services provided **Method:** A cross-sectional study was conducted by Community Medicine department, PDU Government Medical College, Rajkot, during February-March 2015. All health facilities of Rajkot district where Laparoscopic Tubal Ligation (Lap TL) camps were organized including 4 Community Health Centers (CHCs), 5 Sub-District Hospital (SDHs) 1 district hospital, and 1 medical college and hospital were selected for the study. A standard checklist was used for infrastructure and logistics available at various facilities. The data entry was done in Microsoft Office Excel 2007 and analysis was done using the same software. **Results:** Majority of places; infrastructure and facilities are available as well as clean.Storage facility for contraceptives was adequate at all the 11 facilities. All the 11(100.0%) facilities have vehicle/ambulance in running condition. At 3(27.27%) facilities there were no boards displaying service timings. Availability of staff as per sanctioned posts was at 3(27.27%) places and various categories of staff for the activities were present at 6(54.55%) facilities. **Conclusion:** Improvement is required in displaying of IEC materials and sitting arrangement for beneficiaries.

Key words : Infrastructure, Logistics, Sterilization Camp

Introduction:

The National Population Policy 2000 and the Reproductive and Child Health Programme Phase II emphasize the importance of achieving population stabilization and attaining the goal of replacement-level fertility by 2010. [1] Sterilization services are largely being provided through a network of public and private sector facilities. In most states, camps are a major source of sterilization services. Hence, the camp approach is still being followed in several states. [1]

The Reproductive and Child Health Programme provides a basket of choices of contraceptive methods, including terminal and spacing methods. Despite the general acceptance of sterilization, it is observed that the services being provided currently in the country are not meeting the needs of the people due to various factors, such as the absence of skilled service providers and insufficient availability of service centers. As per the National Family Health Survey III (2005-2006) estimates, the unmet need for spacing method was 6.2% and the unmet need for terminal method was 6.6% with wide interstate variations. [1]

In the year 1952, India was one of the first countries in the world to formulate a family planning program at national level. In the 1980s, the program entered the era of laparoscopic technique of female sterilization, which is simpler and less traumatic than the more common method of Tubal Ligation(TL) and today almost a two-third of all tubectomies are laparoscopic cases. [1]

The term 'infrastructure' is used in manifold ways to describe the structural elements of systems. In the context of a health care system and in

reference to health care facilities, we defined "facility infrastructure" as the total of all physical, technical and organizational components or assets that are prerequisites for the delivery of health care services. It can be seen as a major component of the structural quality of a health care system. [2] Same applies to health care facilities, i.e., functionality, quality and extent of such components and assets determine the accessibility, availability, quality and acceptability of health care services as well as the working conditions of facility staff.[3-8]

Present study was conducted with the objectives of assessing the infrastructure and logistics at various health facilities of Rajkot District where Sterilization services are provided.

Method:

A cross-sectional study was conducted by Community Medicine Department, PDU Government Medical College, Rajkot, during February to March 2015. Total 11 health facilities of Rajkot district including 4 CHCs, 5 SDHs, 1 district hospital, and 1 medical college and hospital were included in this study. Sample size was proportion to size sample and random method of sampling was used.

The schedule of visit of all facilities was sent in advance to all Taluka Health Officers (THO) of Rajkot district, all the above-mentioned health facilities and to all empanelled surgeons, who are doing these Lap TL operations. THOs of the concerned health facilities were intimated 1 day in advance about the visit of a team. Assessment team consisted of two Resident doctors, one Health Educator and one Faculty member of Community Medicine, Department, PDU Govt. Medical College, Rajkot.

Study Tool :

A standard checklist recommended by Research Studies & Standards Division, Ministry of Health and Family Welfare, Government of India, October 2006, quality assurance manual for sterilization services, was used for infrastructure and available logistics assessment. [1]

Our team assessed health facilities for infrastructure facility, Operation Theater (OT) facility and logistics availability by using standard checklist for facility audit. Data were collected for infrastructure and logistics from all 11 facilities. The data entry was done in Microsoft Office Excel 2007 and analysis was done using the same software.

It was a survey by Health and Family Welfare Department, Government of Gujarat and conducted by PSM department, so no issue of ethical clearance was required.

Table 1: Infrastructure facilities at various health care facilities

Infrastructure facilities	No. of Heath Centers (N=11)	
	Yes N (%)	No N (%)
The building is in good condition	11 (100.0)	00 (00.00)
The facility is clean	10 (90.91)	01 (09.09)
Running water is available at the service points	11 (100.0)	00 (00.00)
Clean & functional toilet facility is available for staff & clients	10 (90.91)	01 (09.09)
Electricity is available	11 (100.0)	00 (00.00)
Functional generator available	11 (100.0)	00 (00.00)
Petrol, Oil & Lubricants (POL) available for generator	11 (100.0)	00 (00.00)
Available Space earmarked for examination & counseling to assure privacy	07 (63.64)	04 (36.36)
Waiting area with adequate seating facility available	10 (90.91)	01 (09.09)

Table 2 : Contraceptive stock position at various facilities

Contraceptive Stock Position	No. of Heath Centers (N=11)	
	Yes N (%)	No N (%)
Buffer stock available for one month		
1.Oral Pills	08 (72.73)	03 (27.27)
2.Condoms	04 (36.36)	07 (63.64)
3.Copper T	10 (90.91)	01 (09.09)
4.Emergency Contraceptive Pills (EC Pills)	06 (54.55)	05 (45.45)
Facility have adequate storage facility for contraceptives	11 (100.0)	00 (00.00)
Stock-out occur anytime	07 (63.64)	04 (36.36)
If yes, then stock-out occur for which contraceptives (n=7)		
1.Oral Pills	02 (28.57)	-
2.Condoms	05 (71.43)	-
3.Copper T	00 (00.00)	-
4.Emergency Contraceptive Pills	00 (00.00)	-
Availability of effective logistic system that easily track stock level	11 (100.0)	00 (00.00)
Supplies available in good condition (not expired, not damaged)	11 (100.0)	00 (00.00)

Table 3 : Availability of vehicle at various health care facilities

Availability of Vehicle	No. of Heath Centers (N=11)	
	Yes N (%)	No N (%)
Facility have a vehicle/ ambulance in running condition	11 (100.0)	00 (00.00)
Availability of POL for vehicle	11 (100.0)	00 (00.00)

Table 4 : IEC materials at various facilities

IEC materials	No. of Heath Centers (N=11)	
	Yes N (%)	No N (%)
Availability of Clients rights displayed at a prominent place	06 (54.55)	05 (45.45)
Board displaying service timings available	08 (72.73)	03 (27.27)
Availability of free & paid services displayed on wall painting	06 (54.54)	05 (45.45)
Availability of Signboard indicating the direction for each service point displayed	08 (72.73)	03 (27.27)
Flip charts, models, specimens & samples of contraceptives available in counseling room	04 (36.36)	07 (63.64)
Posters, banners & handbills available at the site & displayed	06 (54.55)	05 (45.45)
Suggestion & complaint system for clients (Complaint box and/or a book) available	06 (54.55)	05 (45.45)

Results:

Out of 11 facilities, all have building in good condition, running water, electricity and functional generator. Almost 90% facilities have clean and toilet for staff and waiting area with seating facility. Only at 7(63.64%) facilities, adequate space was earmarked for examinations. [Table 1]

It was observed that storage facility for contraceptives was adequate at all the 11 facilities. But stock-out was reported for condoms at 5(71.43%) and for oral pills at 2(28.57%) places. [Table 2]

All the 11(100.0%) facilities have vehicle/ ambulance in running condition as well as POL for vehicle. [Table 3]

At 3(27.27%) facilities, there were no boards displaying service timings; at 5(45.45%) facilities, no free/paid services displayed and IEC material such as posters, banners and handbills were also not available/displayed at 5(45.45%) facilities. [Table 4]

Discussion:

In the present study, majority of facilities were clean; running water and electricity was available. Generator and Petrol, Oil & Lubricants (POL) for generator were available at all 11 facilities for electricity back up. Similar findings were also observed by Mishra at el that majority facilities (95.8%) had continuous water supply and with alternate source of water supply during any disruptions. [9] All facilities visited had the provision of electricity and alternate backup arrangement for electricity with generator or inverters during power disruptions.

In this study only at 7(63.64%) facilities, adequate space was earmarked for examinations. In a study by Mishra et al observed that 75% facilities do not have adequate space was earmarked for examinations and counseling.

Buffer stock of copper-T for one month was adequate at 11 facilities but condoms, oral pills and emergency pills were not adequate. So stock-out was reported for condoms at 5(71.43%) and for oral pills at 2(28.57%) facilities. A study from Ghana by Adjei et al also reported that 75% public facilities had oral contraceptives available. [10]

In present study 8(72.73%) facilities having Signboard displaying service timings available and indicating the direction for each service point displayed.At 5(45.45%) facilities, no free/paid services displayed and IEC material such as posters, banners and handbills were also not available/displayed at 5(45.45%) facilities.

All facilities had vehicles for transportation. In a study by Mavalankar et al reported availability of vehicles in most of the facilities but vehicles were over crowded. [11]

Strength and Limitations of the Study:

A standard checklist recommended by Research Studies & Standards Division, Ministry of Health and Family Welfare, Government of India, October 2006, quality assurance manual for sterilization services, was used for infrastructure and logistics which is the strength of the study. Whereas, perception regarding infrastructure space and cleanliness of facilities was a subjective matter is the limitation of this study.

Conclusion:

In present study, all facilities were clean and having electricity, running water, clean and functional toilet and vehicle. Improvement is required in available space for examination and counselling, one month buffer stock of oral contraceptives, displaying of IEC materials.

Recommendations:

IEC materials related to contraception-sterilization along with board of service timings & scheme benefits should be displayed at prominent and suitable place. Sitting arrangement for beneficiaries-relatives should be increased as per need.

Declaration:

Funding: Nil

Conflict of Interest: Nil

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A Cross-Sectional Study to Measure Children's Morbidity Experience and Assess Dietary Intake during One Year Post-discharge from Nutritional Rehabilitation Center of Bhavnagar District of Gujarat

Subhash Dhaka[1], K. D. Bhalani[2], Antara Banik[1]

[1]Resident Doctor, [2]Associate Professor, Dept. of Community medicine, Government Medical College, Bhavnagar, Gujarat, India

Correspondence : Dr. K. D. Bhalani, E mail: kdbhalani@gmail.com

Abstract :

Introduction: Malnutrition is responsible for the high incidence of morbidity in children and vice a versa. This study has been conducted to assess the progress of the children after their discharge from Nutritional Rehabilitation Centre (NRC) by measuring the episodes of the common morbidities, they experienced during last one year and also to assess their current routine dietary intake. **Objectives:** To evaluate morbidity experience and assess dietary intake of the children after one year of their discharge from NRC, Bhavnagar **Method:** It was a community-based cross-sectional study carried out on all children who were discharged from NRC Bhavnagar between 1st April-2015 and 31st March-2016, conducted during the period between July 2016 and August 2017. The parents/guardians were interviewed by using the pre-tested, semi-structured questionnaire to collect the information regarding dietary practices and prevalence of childhood morbidities during last one year. **Results:** Total 1071 episodes of illnesses were experienced during last one year by 152 children, who were discharged from NRC, Bhavnagar during the period under study. The most common morbidities found among the children were cough, cold and fever. Average number of episodes of morbidities among the normal children was 7.5 episodes/child/year, among malnourished children, it was 5.9 episodes/child/year among moderately malnourished children, it was 6.7 episodes/child/year. Average protein and calories intake of SAM and normal children across all age-groups were found almost equal to or more than the requirement according to their age. **Conclusion:** Average number of episodes of morbidities experienced by the normal children, were higher than the number of episodes experienced by the malnourished children in the year following their discharge from NRC, Bhavnagar.

Key words: Morbidity, Nutritional Rehabilitation Centre, Severe Acute Malnutrition (SAM)

Introduction :

Globally, it is estimated that there are nearly 20 million children who are severely acutely malnourished and most of them live in south Asia and in sub-Saharan Africa. [1] According to NFHS-4 survey, 7.5% children under five years of age are suffering from SAM in India. [2] According to WHO, children suffering from severe acute malnutrition are at 5–20 times higher risk of death compared to well-nourished children. Current estimates suggest that about 1 million children die every year from severe acute malnutrition. [1]

Severe acute malnutrition puts the children at a greater risk of dying from common infections, increases the frequency and severity of such infections and contributes to delayed recovery. In addition, the interaction between severe acute malnutrition and infections can create a potentially lethal cycle of worsening illness and deteriorating nutritional status.

Nutrition Rehabilitation Centers (NRC) were started by Government of Gujarat at each district headquarters under Mission Balam Sukham in 2013 in order to get back the SAM children on track of

recovery. There was no data available regarding the status of these children once they were discharged from the NRC. This study was conducted among the children after one year of their discharge from NRC, Bhavnagar to evaluate their morbidity experience and assess their routine dietaryintake.

Method:

It was a community-based cross-sectional study, which was carried out between July 2016 to August 2017. Study subjects consisted of all the children who were discharged from NRC, Bhavnagar between 1st April-2015 and 31st March-2016. After receipt of permission from in-charge of NRC, Bhavnagar for conducting the study, a list of the children, who were discharged from NRC, Bhavnagar between April 1, 2015, and March 31, 2016 was obtained.

A semi-structured questionnaire was designed in English and vernacular language. A pilot study was conducted and the questionnaire was corrected accordingly. Ethical clearance was obtained from Institutional Review Board of Government Medical College, Bhavnagar.

All the parents/guardians of the participants were contacted telephonically and were requested to participate in the study. They were visited at their convenient time and place. The participants were to be considered non-respondent, if they could not be interviewed after 2 such attempts.

After obtaining informed consent from each of the respondents (i.e. mothers/caregivers of the children), an interview was conducted and data were collected with a pre-tested and semi-structured questionnaire. The respondents were asked about the various common morbidities; the child had experienced during last one year.

They were also asked about the food intake of the child by using 24 hour recall method. The information thus obtained was then converted into the amount of protein and calories consumed, by using nutritive value tables from the book, Nutritive Values of Indian Foods, published by NIN, ICMR. [3]

Data entry and statistical analysis was done by using EPI Info 7.0 software.

Ethical approval: The study were approved by the Institutional Review Board of Government Medical College, Bhavnagar

Results:

There were 161 children discharged from NRC, Bhavnagar between 1st April-2015and 31st March-2016. Nine of them could not be interviewed after 2 scheduled attempts. So they were excluded from the study and final analysis was carried out from the data collected from total 152 (94.4%) respondents.

Table 1: Sex wise average number of episodes of different morbidities in the children during Last One Year.

Type of Morbidity	Average No. of Episodes/ Child/Year		
	Total N=152	Boys N=77	Girls N=75
Cough and cold	2.5	2.4	2.5
Pneumonia	0.1	0.1	0.1
Breathlessness	0.1	0.0	0.1
Earache	0.5	0.5	0.5
Fever	2.0	2.0	2.0
Diarrhea	1.8	1.8	1.7
Measles	0.1	0.1	0.1
Other illnesses	0.1	0.1	0.1
Total	7.0	7.0	7.1

It was found that during last one year on an average, a male child suffered from 7 episodes of common morbidities whereas a female child suffered from 7.1 episodes of common morbidities per year. For any of the morbidity in the table-1, difference in the average number of episodes between boys and girls was not found statistically significant. (t- test, $p > 0.05$, df =150).

It was found that on an average each child (of any age group) suffered from around 7 (Range- 6.7 to 7.2) episodes of common morbidities during last year. For any of the morbidity in table-2, difference in the average number of episodes between the children of <36 months and >36 months of age (groups in the table 2 were merged accordingly for the calculation of the t test) was not found statistically significant (t test, $p > 0.05$, df=150).

Table 2: Age-group wise average number of episodes of different morbidities in the children during last one year

Type of Morbidity	Average No. of Episodes/ Child/Year				
	<24 month N=3	24-35 month N=39	36-47 month N=46	48-59 month N=33	>60 month N=31
Cough and cold	2.7	2.4	2.6	2.5	2.4
Pneumonia	0.0	0.1	0.1	0.2	0.1
Breathlessness	0.0	0.0	0.1	0.0	0.0
Earache	0.3	0.5	0.6	0.5	0.5
Fever	2.0	2.2	1.9	2.1	2.0
Diarrhea	1.7	1.9	1.7	1.7	1.8
Measles	0.0	0.1	0.1	0.1	0.1
Other illnesses	0.0	0.1	0.1	0.2	0.1
Total	6.7	7.2	7.0	7.2	6.8

Table 3: Average number of episodes of morbidities during last one year in the children according to their malnutrition status.

Type of Morbidity	Avergae No. of Episodes/ Child/Year			
	Total N=152	SAM N=15	MAM N=52	Normal N=85
Cough and cold	2.5	2.1	2.4	2.5
Pneumonia	0.1	0.2	0.1	0.1
Breathlessness	0.1	0.0	0.1	0.0
Earache	0.5	0.2	0.2	0.7
Fever	2.0	1.8	2.0	2.0
Diarrhea	1.8	1.5	1.6	1.9
Measles	0.1	0.1	0.0	0.1
Other illnesses	0.1	0.1	0.1	0.1
Total	7.0	5.9	6.7	7.5

Table 4 : Age-group wise mean protein and calories intake by the children

Age group (years)	Requirement* of protein(gms)	Requirement* of Calories(kcal)	Malnutrition Status based on W/A	Mean Protein intake(gms	Mean Calories intake(kcal)
1-3 (N=42)	16.7	1060	SAM	17.5	1191
			MAM	14.6	932
			NORMAL	16.5	1086
4-6 (N=79)	20.1	1350	SAM	22.8	1448
			MAM	18.0	1155
			NORMAL	20.0	1299
7-9 (N=31)	29.5	1690	SAM	32.5	1750
			MAM	20.0	1290
			NORMAL	27.0	1596

*According to guidelines of NIN, ICMR.[3]

It was found that during last one year on an average, 5.9 and 6.7 episodes of common morbidities were experienced by SAM and MAM children (at the time of the visit) respectively as against 7.5 episodes by the children, who were normal at the time of the visit.

For all of the morbidities in table-3, except diarrhea and earache, the difference in the average number of episodes between the malnourished children(SAM+MAM children) and normal children (groups in the table 3 were merged accordingly for the calculation of the t test) was not found statistically significant. (t - test, $p > 0.05$, $df = 150$). However, for diarrhea and earache, the difference was found statistically significant (t-test, $p < 0.05$, $df = 150$)

As shown in table 4, the mean protein intake of SAM children in the age group of 1-3 years was 17.5 grams in comparison to the normal requirement of 16.7 grams. In the age group of 4-6 years, mean protein intake of SAM children was 22.8 grams in comparison to their normal requirement of 20.1 grams Also and mean protein intake of SAM children in the age group of 7-9 years was 32.5 grams in comparison to their normal requirement of 29.5 grams. Thus, the protein intake of the SAM children was more than the minimum requirement according to their age. However, the protein intake of MAM and normal children was found less than the minimum required amount according to their age. Similarly, the calorie intake of SAM children was also found more than their minimum requirement for all the age groups.

Discussion:

It was found that 152 studied children suffered from 1071 episodes of common morbidities during last 1 year. Among the morbidities, average number of episodes of cough and cold was highest (2.5 episodes/child/year) followed by fever, diarrhea and earache (2, 1.8 and 0.5 episodes/child/year respectively) in the children under study. It was also observed that on an average, a female child suffered from 7.1 episodes of common morbidities during last year, whereas a male child suffered from 7 episodes of common morbidities during last year. Chowdhary et al and Oqbeide O[4,5] had reported higher morbidity rates among female children. However, Tendai (2014) et al[6] in their study observed that male children had experienced higher number of episodes of morbidities as compared to females whereas Datta Banik et al[7] and Amrita N (2015) et al[8] had found no difference in the incidence of sickness between male and female children.

It was observed that more or less the children of all age-groups have experienced similar number of episodes of common illnesses i.e. around 7 episodes/child/year (Range – 6.7 to 7.2 episodes/child/year). Mean number of episodes of cough and cold experienced by the children across all age groups were around 2.5 episodes followed by around 2 episodes of fever. No clear age-trend could be observed regarding the experience of common morbidities in these children.

It was found that during last one year, average numbers of episodes of common morbidities experienced by the SAM, MAM and normal children were 5.9, 6.7 and 7.5 respectively. Except for diarrhea and earache, the difference in the morbidity rates between underweight (SAM and MAM) and normal children was not found statistically significant.

Arun. A, et al (2014) in their hospital based prospective observational study in Kanpur, found that 36.5% of the malnourished children sufferedfrom acute gastroenteritis and 26.5% suffered from acute respiratory infections. Tuberculosis was also present in 21.5% cases.[9]

It can be observed from the study that the average energy and protein intake by SAM children were comparatively higher than MAM and normal children. This may be due to either increased requirement of energy and protein in SAM children or probably because SAM children were being cared more. This result can also be because of the effect of other confounding factors like age, sex, etc.

Result of the study showed that protein and calories intake of MAM children in all age-groups were less than their normal requirement according to their age. Being a MAM child, he/she should have had more intake than normal child. So these children were (even after more than a year of their discharge from NRC) still not on track of good nutrition.

Conclusion:

Male and female children who were discharged from NRC, Bhavnagar experienced similar number of episodes of common morbidities on an average. It was also concluded that there was no statistically significant difference found between the children of <36 months and 36 or >36 months of children for the experience of the number of episodes. Normal children had experienced more number of episodes of common morbidities as compare to malnourished children. However, the difference was not found statistically significant for any of the morbidities except diarrhea and earache. Average energy and protein intake of MAM children was comparatively lower than the SAM and normal children and also lower than the recommended required intake for their age.

Declaration:

Funding: Nil

Conflict of Interest: Nil

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Assessment of Satisfaction among Outpatient Department (OPD) Patients Visiting District Hospital of West Gujarat

Mittal Rathod[1], Naresh Makwana[2], Sudha Khambhati[3], Mehul Kaliya[4]

[1]Tutor, [2]Professor, [3]Lady Medical Officer, Community Medicine Department, Shree M. P. Shah Government Medical College, Jamnagar, Gujarat, India

[4]Assistant Professor, Medicine Department, Shree M.P.Shah Government Medical College, Jamnagar, Gujarat, India

Correspondence : Dr. Mittal Rathod, E mail: dr.mittal74@gmail.com

A**bstract:**

Introduction: Selection of an appropriate health care and measurement of its quality is very complex and elusive, yet the tools of its measurement have been improving. It is easier to evaluate the patient's satisfaction towards the service than to evaluate the quality of medical services that they receive. Therefore, a research on patient satisfaction can be an important tool to measure of health system performance and improve the quality of services. Satisfaction manifests itself in the distribution, access and utilization of health services. **Objective:** The main objective of this study is to measure the satisfaction of OPD (Outpatient Department) patients in district hospital, Jamnagar, Gujarat. **Method**: Data were collected from a pre-tested, pre-structured questionnaire from 322 patients, who gave the verbal consent at the end of their O.P.D visit at the health facility, Guru Govind Singh Government Hospital, Jamnagar. The items in the questionnaire referred to particulars of the patients such as age, gender, education, occupation, income, family type etc.; perception of patients towards doctor , paramedical staff, basic amenities and quality of care. The responses were expressed in proportions. The data was tabulated on Microsoft Excel sheet and analyzed using EPI info. **Results:** Although majority of patients were satisfied with the availability of medicines; availability of information on illness, treatment and prevention; doctor's patience, compassion and dedication but most of the patients were not satisfied with the behavior of hospital personnel ;delay in reception of investigation reports ;unhygienic toilets and improper cleanliness of hospital; and lack of availability of drinking water .

Key Words : Quality care, Patient satisfaction, Public health

Introduction:

Quality care is the most important dimension of public health and it has emerged as an internationally important aspect in the health care services provision. This quality of care can be measured in terms of structure, process and outcome. Structure refers to the basic infrastructure and facility, process refers to the way the care is delivered and outcome refers to the end result.[1,2]

While measuring health outcome and quality of patient care services, patient's satisfaction is considered to be important component. [3, 4] the outcome of any disease is influenced not only by the appropriate diagnostic and treatment services but also the receipt of satisfactory care from service providers. A satisfied patient is more likely to develop a deeper and longer lasting relationship with their medical provider, leading to improve compliance, continuity of care and ultimately better health outcome. But it is difficult to measure the satisfaction and gauze responsiveness of health systems as not only the clinical but also the non-clinical outcomes of care do influence the patients' satisfaction ,[5] such as: Quality of clinical services provided, availability of medicine, behavior of doctors and other health staff, cost of services, hospital infrastructure, physical comfort, emotional support, and respect for patient preferences.[6] Mismatch between patient expectation and the service received is related to decreased satisfaction.[7]Therefore, assessing patient perspectives gives them a voice, which can make public health services more responsive to people's

needs and expectations.[8, 9] In the recent past, studies on patient satisfaction gained popularity and usefulness as it provides the chance to health care providers and mangers to improve the services in the public health facilities. Patients' feedback is necessary to identify problems that need to be resolved in improving the health services. Even if they still do not use this information systematically to improve care delivery and services, this type of feedback triggers a real interest that can lead to a change in their culture and in their perception of patients. [10] OPD is the window to any health system and OPD care indicates the quality care of hospital reflected by patient's perception in terms of satisfaction to the services they are provided.[11] This study was therefore undertaken at OPDs of tertiary level health facility in Jamnagar to measure patient satisfaction. The main objective of this paper is to know the desired level of services as perceived by the patients about various components of out-door patient department (OPD) services. In this study, the OPD is defined as the hospital's department where patients received diagnoses and/or treatment but did not stay overnight.

Method:

Study design: Institution based cross-sectional study.

Study population: The present study was conducted among the patients attending the outpatient department (OPD) of Guru Govind Singh government hospital, Jamnagar.

Period of study: 4 months from August 2017 to November 2017. The period of survey was for 1 month (September 2017).

Sampling frame: The sampling frame consisted of the outpatient department (OPD) of Guru Govind Singh government hospital, Jamnagar. .

Sample size: Anticipated p value of fifty percent was taken thus according to WHO practical manual on sample size determination in health studies by Lwanga and Lemeshow $N = Z\alpha PQ/l^2$ Where, $Z\alpha = 1.96$ at 5% significance level, N= required sample size, P=proportion or prevalence of interest, Q=100-p, L=allowable error. Thus it came to 384 subjects. 384 OPD patients were interviewed one to one during the September 2017.

Sampling technique: Proportionate probability sampling, the sampling population was interviewed from the most frequented OPDs (Medicine, General surgery, Obstetrics and Gynecology, Pediatrics, Orthopedics, Otorhinolaryngology, Ophthalmology, Skin, Tuberculosis and Chest diseases) according to probability proportion to size based on the past years OPD attendance For 6 days in a week for a month.

Inclusion criteria: A new or referred patient attending the OPD of the respective health care facility, who gave verbal consent.

Exclusion criteria: Patients working in the health care facility and patients admitted (indoor patients) and follow-up patients attending the OPD of the respective health care facility, who didn't gave verbal consent or gave incomplete information, were excluded from the study.

Selection of patient: The patients attending the OPD of the respective health care facility were selected for the interview by purposive sampling. Depending upon the previous attendance of the particular department and the time taken to complete the interview, a random number was chosen and every 5^{th} patient was selected for the interview. This process was continued till the required sample size was completed.

Tools of data collection: Permission to conduct the study was taken from the superintendents of the concerned health care facility. All the patients were interviewed after they had consulted the doctor. Informed verbal consent was taken from all the participating patients before the start of the interview after telling them about the objective of the study and the approximate time that will be involved in the completion of the interview. The prescribing doctor was largely kept unaware of the procedure, except in unavoidable circumstances, to avoid the bias in their behavior with the patient. A pre-tested pre-structured questionnaire was used to record information taking the key elements of socio-demographic characteristics and perception of the patients regarding quality of services available at the outpatient health care facility. Analysis Data was tabulated on Microsoft Excel sheet and analyzed using the software Epi Info version 6.

Results:

Table 1: Distribution of participants according to their socio-demographic profile:

Sociodemographic Characteristics	No. (Percentage)
Age Group (in years completed)	
<20	50 (15.53%)
20-29	95 (29.50 %)
30-39	50 (15.53 %)
40-49	45 (13.98%)
50-59	36 (11.18%)
>60	46 (14.29 %)
Gender	
Female	141 (43.79%)
Male	181 (56.21 %)
Education	
Illiterate	129 (40.06%)
Primary	75 (23.29%)
Secondary	63 (19.57%)
Higher secondary	37 (11.49%)
Graduate	18 (5.59%)
Occupation	
Business	38 (11.80%)
Farmer	23 (7.14%)
Housewife	139 (43.16%)
Laborer	26 (8.07%)
Service	49 (15.21%)
Student	5 (1.55%)
Others	41 (12.73%)
None	1 (0.31%)
Family type	
Joint	182 (56.52%)
Nuclear	118 (36.65%)
Three generation	22 (6.83%)
Family members	
≤ 4	66 (20.50%)
5-10	248 (77.02%)
>10	8 (2.48%)
Income	
< 10,000 Rs	88 (27.33%)
10,000-14,000 Rs	157 (48.76%)
15,000-19,000 Rs	52 (16.15 %)
>20,000 Rs	25 (7.76%)

Among all the subjects interviewed during the data collection, 322 were included in the statistical analysis and the remaining was not included, because of incomplete information. A majority (56.21%) of the responders were male. About 40% of the responders were illiterate. About half (56%) belonged to a joint family. Nearly half of the study subjects belonged to the lower socioeconomic status category as per the Kuppuswamy classification.

The results regarding each question are shown in Table 2. Most of the respondents were satisfied with arrangements registration counter, the availability of medicines; also they were able to get the medicines easily. Most of the respondents agreed that complete information was provided to them on the illness, treatment, and the methods to avoid illness. Almost half (48%) of the patients were not satisfied with the politeness of the hospital personnel. More than half (61%) of the patients stated that hospital personnel were not helpful. 59 % patients said that the doctor did not give them adequate time while 60% of the patients said that the doctor has given enough time to listen completely to their complains. 57% of the patients were satisfied that the doctor has checked carefully and was readily answering their questions. Almost 50% of the patients were told that the doctor gave them adequate time and didn't rush. 42% patients couldn't easily locate the place of investigation. 55% of the patients didn't receive their reports in time. 57% of the patients were not satisfied with the cleanliness of the hospital. 69% of the patients were not satisfied with the toilet conditions. 59% of the patients stated that drinking water wasn't available in the hospital. Majority of patients found that there was problem of overcrowding & improper sitting arrangements.

Overall 66.45% respondents termed the hospital services as satisfactory, 62.11% were satisfied with the treatment given, but 52.48% stated that the services provided were not worth the money spent, and 40.99% replied that they would like to visit the facility again in future. [Table 3]

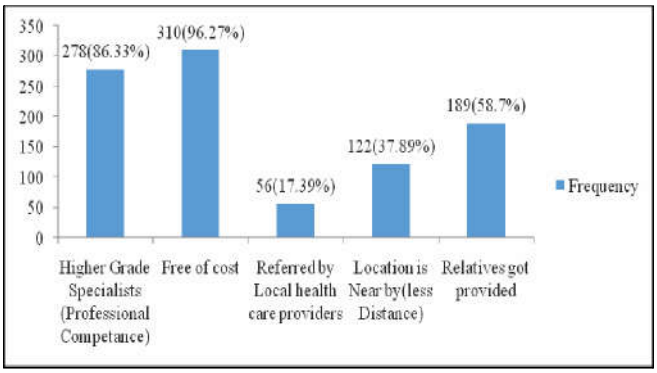
Table 2: Distribution of patients' perception of the quality of services available (n =322)

Sr. No	Question	Yes N (%)	No N (%)	Don't know N (%)
1.	Is Registration counter appropriate?	310(96.27)	12(3.73)	0
2.	Do you find problem of overcrowding?	318(98.76)	4(1.24)	0
3.	Are sitting arrangements proper?	23(7.14)	299(92.86)	0
4.	Does hospital has all essential medicines?	315(98.83)	7(2.17)	0
5.	Are you able to get medicines easily?	302(93.78)	20(6.2)	0
6.	Has doctor advised you on methods to avoid illness?	306(95.03)	15(4.66)	1(0.31)
7.	Whether complete information on illness given?	295(91.62)	26(8.07)	1(0.31)
8.	Whether complete information on treatment given?	270(83.85)	52(16.15)	0
9.	Has hospital personnel talk politely?	165(51.24)	156(48.45)	1(0.31)
10.	Were hospital personnel helpful?	120(37.27)	199(61.80)	3(0.93)
11.	Did doctor give enough time to explain?	129(40.06)	189(58.70)	4(1.24)
12.	Has doctor listened carefully?	193(59.94)	128(39.75)	1(0.31)
13.	Has doctor checked carefully?	184(57.14)	136(42.24)	2(0.62)
14.	Was doctor ready to answer questions?	184(57.14)	138(42.86)	0
15.	Did doctor give adequate time?	163(50.62)	155(48.14)	4(1.24)
16.	Was Place for giving samples easily located?	182(56.52)	138(42.86)	2(0.62)
17.	Were reports of investigations received in time?	144(44.72)	178(55.28)	0
18.	Do you find hospital cleanliness adequate?	137(42.55)	184(57.14)	1(0.31)
19.	Do you find condition of toilets satisfactory?	96(29.81)	223(69.25)	3(0.93)
20.	Is drinking water available in hospital?	131(40.68)	190(59)	1(0.31)

Table 3 : Distribution of participants according to patients' perception on Quality of care

Sr. No	Variable	Good N (%)	Poor N (%)
1.	Hospital service	214(66.45%)	108(33.55%)
2.	Treatment aspects	200(62.11%)	122(37.89%)
3.	Value for money spent	153(47.52%)	169(52.48%)
4.	Future preference for services	190(59.01%)	132(40.99%)

Figure 1: Distribution of participants according to reason for choosing District Health care facility



Majority of the subjects utilized district health care facility for reasons of free cost &availability of higher grade specialists. Other reasons were good response from relatives, less distance & as referral health facility. (Figure 1)

Discussion:

In current study, patients were satisfied with the ease of availability of the required medicines while in a study done by Sivalenka [12] medicine supply was an area of concern. Most of patients were satisfied with the information provided to them about illness, its treatment and prevention. Patients were not very satisfied with the behavior of the hospital personnel. Lack of monitoring of staff, due to very high patient load, could be the reason for this. It was observed during the study that the ultimate satisfaction of the patient is their rapport with the doctor. A patient forgets the pain he faces to reach the doctor if the doctor sees him with patience and compassion. In our study, most of the patients were satisfied with the behavior of the doctor, which was similar to the result of study by Kumar et al. [13] More than half of the patients were not satisfied due to the delay in reporting time of the investigations thereby increasing their waiting time which is similar to other studies. [14, 15] Some of the responder cited inability to locate the departments as a constraint. Lack of proper sign boards leads to difficulty in locating the departments. A good number of patients were not satisfied with the cleanliness of the hospital. Also most of them were not satisfied with the condition of the toilets. As compared with private sector, government hospitals lack in general cleanliness and hygienic toilets, thereby leading to severe patient aversion and dissatisfaction, which needs to be improved, similar findings have been observed in some other studies.[13,15-17] As observed in our study, Overall level of satisfaction of patients towards government tertiary care health facility is low, although patients appeared to be satisfied with the doctors, which seems to be a strong reason of their still existing faith in the tertiary care government hospital. Thus we need to improve the rest of the factors so as to keep up to the expectations of the patients ,thereby try to fulfill the basic need of patient- which is readily available ,easily accessible, and satisfactory health services for all.

Conclusion & Recommendations:

Efforts should be made to reduce the patient load at the district health facilities so that doctors and other staff can give more attention and time to the patients. The findings of the present study can be utilized to improve the services at public health facilities of the state resulting in the more satisfaction of patients availing such public health facilities. Community participation can be taken in considerations for lacunas like availability of signs for respective departments, cleanliness & self-entry checks for prohibiting entry of tobacco & its products. Token based easy registration system can be introduced for ease. Advantage of visiting tertiary government health care facility can be explained. Posters & banners of proper utilization & maintenance of public health care facility can be displayed. Same is applicable for preserving cleanliness of the set up.

Declaration:

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Conflict of Interest: Nil

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A Study on Knowledge and Practices Regarding Hand Hygiene and Factors Affecting its Adherence among Healthcare Providers of a Tertiary Care Hospital of South Gujarat

Hinal Baria[1], Ravikant Patel[2], Sunil Nayak[3]

[1]Assistant professor, [2]Associate Professor, [3]Professor and Head, Department of Community Medicine, GMERS Medical College, Valsad, Gujarat, India

Correspondence : Dr. Ravikant Patel, E mail: drbariag@gmail.com

Abstract :

Introduction: About 1.4 million people around the world become seriously ill from Health Care Associated Infections at any given time**.** The risk of infection in developing countries is 2 to 20 times higher than in developed countries and its incidence in India ranges from 5-30%. **Aims and objectives:** To study knowledge and practices regarding hand hygiene among Health Care Providers and to study the factors affecting the hand hygiene adherence. **Method:** Cross sectional study conducted in tertiary care of hospital of Valsad. Prior oral informed consent was taken from the participants before the start of the study. An anonymous questionnaire formed as per WHO guidelines on hand hygiene was used as data collection tool. **Results**: 64% medical and 72% paramedical staff has taken training in hand hygiene in last three years. 19.37% medical and 26.02% paramedical staff reported less time and more work load as barriers in implementing routine hand hygiene practices respectively. 20.93% medical and 6.97% paramedical staff reported training as an important factor for improved hand hygiene practices in the hospital. 66% staff of both groups correctly knows about required time needed for hand washing practice as per WHO guidelines whereas 26% medical and 44% paramedical staff doesn't have correct knowledge of hand hygiene practices when hands are visibly soiled. **Conclusion**: Lack of correct knowledge regarding hand hygiene practices among health care providers.

Keywords: Adherence, Hand Hygiene, Hand washing, Health Care Providers

Introduction:

More than 1.4 million people around the world become seriously ill from Hospital Acquired Infection (HAI) at any given time. [1]

The burden of HAI in India is poorly documented. The Hospital Infection Society of India estimates that the incidence of HAI in India ranges from 5-30%. [2] It has been shown that most infections are transmitted by the hands of Health Care Workers (HCW). [3]

Hand washing causes a significant reduction in the carriage of potential pathogens on the hands of HCWs and risk of cross transmission of infection in health care facilities. [4] Hand hygiene is now regarded as one of the most important element of infection control activities. In the wake of the growing burden of health care associated infections (HCAIs), the increasing severity of illness and complexity of treatment, superimposed by Multi-Drug Resistant (MDR) pathogen infections, Health Care Practitioners (HCPs) are reversing back to the basics of infection preventions by simple measures like hand hygiene. This is because enough scientific evidence supports the observation that if properly implemented; hand hygiene alone can significantly help prevent transmission of infections. [5-9]

There is now undisputed evidence that strict adherence to hand hygiene reduces the risk of cross-transmission of infections. With "Clean Care is Safer Care" as a prime agenda of the global initiative of WHO on patient safety programmes, it is time for developing countries to formulate the much-needed

policies for implementation of basic infection prevention practices in health care setups. This study focuses on one of the simplest, low cost but least accepted from infection prevention that is hand hygiene. So the study was conducted with the objectives to study the knowledge and practices regarding handhygiene among health care providers and to study the factors affecting the adherence and to study any differences in practices among different categories of health care providers.

Method: Study was started after the written permission from the institutional ethics committee of the institution.

The study was undertaken at two stages:

Stage 1: To assess the knowledge and practices of Health care providers regarding the hand hygiene practices.

A cross sectional study was conducted in a Tertiary Care Hospital of South Gujarat from period 16 July 2017- 15 August 2017. Stratified random sampling method is used and participants are divided into two strata's; Medical and Paramedical staff and as per the convenience sampling method we had randomly selected 50 medical and 50 paramedical from various study units of hospital (Outpatient departments (OPD), Inpatient departments (IPD), Intensive Care Unit (ICU) ,Labour Room (LR). An anonymous pretested and preformed questionnaire formed as per the WHO guidelines on hand hygiene [6] was administered to the participants as a tool for data collection to know their knowledge and practices. Prior to data collection a verbal informed consent was taken from each participant and those who had not given consent are excluded from the study.

Stage 2: Infrastructure survey

An infrastructure survey of the hospital (wards, OPDs ICUs Operation Theatre, Labour room) was undertaken to determine whether it is appropriate and adequate for the effective implementation of hand hygiene practices.

Data was collected and analyzed in Microsoft Office excel.

Results:

Present study was conducted with the objective to study the knowledge and practices regarding hand hygiene among the health care providers (medical and paramedical staff). The study revealed that overall there is lack of correct knowledge among the health care providers. The difference in knowledge and practices among the groups was also found highly significant ($p<0.005$) in the study. **(Table 1)**

Table 1: Correct knowledge regarding hand hygiene and its practices.

Sr. No	Question	Medical N=50 (%)	Paramedical N=50 (%)	P value
a.	Formal training in hand hygiene in the last three years	32 (64%)	36 (72%)	p>0.05
b.	Did you routinely using alcohol base handrub?	46 (92%)	45 (90%)	p>0.05
c.	Did you aware of standard operating procedure regarding hand hygiene?	38 (76%)	42 (84%)	p>0.05
d.	Which is the main route of cross-transmission of potentially harmful germs between patients in a health-care facility	29 (58%)	27 (54%)	p>0.05
e.	Most frequent source of germs responsible for health care-associated infections	25 (50%)	10 (20%)	P<0.05

Sr. No	Question	Medical N=50 (%)	Paramedical N=50 (%)	P value
f.	What is the minimal time needed for alcohol-based hand rub to kill most germs on your hands?	29 (58%)	16(32%)	P<0.05
g.	Pathogens that readily survive in the environment of the patient for days to weeks.	30 (38.96%)	28 (32.55%)	p>0.05
h.	Time needed for hand washing practice.	33 (66%)	25 (50%)	p>0.05
i.	which hand hygiene actions that prevents transmission of germs to the patient			
1	Before touching a patient	47(94%)	45(90%)	p>0.05
2	Immediately after a risk of body fluid exposure	15 (30%)	12(24%)	p>0.05
3	After exposure to the immediate surroundings of a patient	35(70%)	34(68%)	p>0.05
4	Immediately before a clean/aseptic procedure	33(66%)	32(64%)	p>0.05
j.	which Hand hygiene actions that prevents transmission of germs to the health-care worker			
1	After touching a patient	47(94%)	43(86%)	p>0.05
2	Immediately after a risk of body fluid exposure	41(82%)	38(76%)	p>0.05
3	Immediately before a clean/aseptic procedure	16(32%)	10(20%)	p>0.05
4	After exposure to the immediate surroundings of a patient	37(76%)	31(62%)	p>0.05
k.	identify the Statements on alcohol-based handrub and handwashing with soap and water are true			
1	Handrubbing is more rapid for hand cleansing than handwashing	39(78%)	40(80%)	p>0.05
2	Handrubbing causes skin dryness than handwashing	29(58%)	31(62%)	p>0.05
3	Handrubbing is more effective against germs than handwashing	27(54%)	26(52%)	p>0.05
4	Handwashing and handrubbing are recommended to be performed in sequence	26(52%)	20(40%)	p>0.05
5	It is sufficient to wash hands only once before attending to many patients in the ward.	34(68%)	38(76%)	p>0.05
6	Visibly soiled hands can be cleansed using an alcohol based hand rub	37(74%)	18(36%)	P<0.0005
7	Soap and alcohol based hand rub can be used concomitantly	20(40%)	18(36%)	p>0.05
8	Gloves should be changed or removed if moving from a contaminated body site to either another body site within the same patient or the environment.	40(80%)	41(82%)	p>0.05

l.	what is the required hand hygiene method in following situations?			
1	Before palpation of the abdomen	46(92%)	44(88%)	p>0.05
2	Before giving an injection	45(90%)	24(48%)	p<0.00005
3	After emptying a bedpan	45(90%)	45(90%)	p>0.05
4	After removing examination gloves	40(80%)	33(66%)	p>0.05
5	After making a patient's bed	33(66%)	21(66%)	p<0.05
6	After visible exposure to blood	45(90%)	41(82%)	p>0.05
m.	Things that should be avoided, as associated with increased likelihood of colonization of hands with harmful germs?			
1	Wearing jewellery	34(68%)	31(62%)	p>0.05
2	Damaged skin	44(88%)	43(86%)	p>0.05
3	Artificial fingernails	44(88%)	39(78%)	p>0.05
4	Regular use of a hand cream	37(76%)	32(64%)	p>0.05

Table 2: Attitude of health care workers towards the effectiveness of actions to improve the compliance of hand hygiene practice

Opinion regarding the effectiveness of actions	Medical n=50 (%)			Paramedical n=50 (%)		
	Effective	Very Effective	Not Effective	Effective	Very Effective	Not Effective
The health care facility makes alcohol based hand rub available at the point of care	30 (60%)	20 (40%)	0	36 (72%)	13 (26%)	1 (2%)
Hand hygiene posters are diaplayed at point of care	28 (56%)	20 (40%)	2 (4%)	23 (46%)	24 (48%)	3 (6%)
Each health care workers should be trained in hand hygiene	19 (38%)	31 (62%)	0	20 (40%)	29 (58%)	1 (2%)
Clear and simple instructions for hand hygiene are made visible for every health care worker	34 (68%)	16 (32%)	0	26 (52%)	22 (44%)	2 (4%)
Administration of the hospital should support and promote hand hygiene practices	22 (44%)	27 (54%)	1 (2%)	28 (56%)	21 (42%)	1 (2%)
How do you consider the effort required by you to perform good hand hygiene when caring for patients	25 (50%)	24 (48%)	1 (2%)	33 (66%)	17 (34%)	0 (0%)

More than 50% of health Care Providers are of the opinion that training in hand hygiene can prove effective in increasing hand hygiene practices in the hospital (Table 2)

Table 3: Barriers in implementing routine hand hygiene practice

Barriers	Medical	Paramedical
More work load	7(5.42%)	38(26.02%)
Less time	25(19.37%)	24(16.43%)
Water not available/out of reach	20(15.50%)	13(8.90%)
Sink not available/ out of reach	11(8.52%)	8(5.47%)
Laziness	13(10.07%)	7(4.79%)
No administrative motivation	14(10.85%)	9(6.16%)
Allergy to soap and alcohol based hand rub	4(3.10%)	9(6.16%)
No time in emergency situations	22(17.05%)	21(14.38%)
Lack of knowledge of hand hygiene practices	13(10.07%)	17(11.64%)

More work load (26%) and less time (19.37%) are the barriers reported by the Health care providers in implementing routine hand hygiene practices (Table 3)

Table 4: Suggestions to improve hand hygiene practices

Suggestions	Medical	Paramedical
Training at frequent intervals	9(20.93%)	3(6.97%)
Awareness and Educational programmes	7(14%)	6(12%)
Motivation from hospital administration	4(9.30%)	15(2.32%)
Availability of soap and water	4(8%)	1(2.32%)
Others	5(11.62%)	3(6.97%)

Majority of staff suggested frequent training and motivation from hospital administrations for improving the hand hygiene practices (Table 4).

Discussion:

Training and education is the corner stone before to make implementation on any practices. Our study was conducted to know the knowledge and practices regarding hand hygiene among health care providers. In the present study more than 30% of health care providers had not taken formal training in hand hygiene in the last three years which is an important factor for the sensitization of the staff for correct implementation of hand hygiene practices in routine patient care, on the contrary in a study by Lt V. Anargh et al it was reported that majority of health staff (91%) had received the formal training on hand hygiene at the time of employment in the hospital [10] Majority of the staff in the present study knows the correct routine use of alcohol based handrub as it is a routine practice of using alcohol based hand rub by the doctors and the paramedical staff during patient care and also similar findings observed in other studies. [11] Difference in the knowledge and practices of hand hygiene among the medical and paramedical staff is noted in the study and the difference was found statistically highly significant ($p<0.005$), this may be due to lack of proper trainings and sensitization on routine hand hygiene practices. Similar findings were also reported in a study by

Table 5: Availability of required infrastructure for implementation of hand hygiene practices

infrastructure required for hand hygiene	OPD (n=10)	IPDs (n=7)	ICU (n=2)	LR (n=1)	NICU (n=1)
Availability of sink	9	7	2	1	1
Accessibility of sinks	9	7	2	1	1
Physical condition of sink	9	7	2	1	1
Availability of water	8	7	2	1	1
Type of tap (ELBOW OPERATED)	8	5	1	1	1
Working status of tap	9	7	2	1	1
Availability of soap stand	7	6	2	1	1
Availability of cleansing agent	9	7	2	1	1
Is Alcohol based hand rub available?	10	7	2	1	1
Availability of towel stand	4	3	2	1	0
Availability of towel	10	7	2	1	0
Physical condition of towel	9	6	2	1	0
Condition of sink drain	9	7	2	1	1

Majority of staff suggested frequent training and motivation from hospital administrations for improving the hand hygiene practices (Table 4).

different studies on health care providers. [12, 13] Majority of the health care providers in current study reported more work load and less time are the factors for hindering their hand hygiene practices. The infrastructure required to perform effective hand hygiene practices was found adequate in infrastructure survey and it was not the factor responsible for non-adherence to hand hygiene. The contrast findings was observed by in a study by Raman Sharma et that the reasons for non-adherence are unavailability of soap at the washing area (82.4%) and work load pressure (94.2%). [14] in our study majority of the Health Care providers were of the opinion that frequent trainings and workshops help their compliance in handhygiene practices and similar recommendations were also made in similar studies that Multifaceted interventions like education, regular feedback, reinforcement training needs to be undertaken to improve the compliance of care providers to hand hygiene practices. [15]

Limitations of the study: Not feasible to measure the hand hygiene practices by observation method.

Conclusion & Recommendations:

The study reveals that there is lack of knowledge regarding hand hygiene and its practices between different Health care Providers and more work load and less staff are the factors affecting their adherence to effective implementation of hand hygiene practices. The following are the recommendations:

1. Training and education of health care workers is necessary at frequent intervals to improve their hand hygiene knowledge and practices.
2. Motivation and support from the hospital administration.
3. Supervision of adherence to hand hygiene practices at frequent intervals.
4. Barriers to hand hand hygiene adherence should taken into consideration by the higher authorities and should to seek as early as possible.

5. Pre-employment sensitization training should be a key component for newer staff.

Declaration:

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Conflict of Interest: Nil

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Impact of Information, Education and Communication (IEC) Regarding Awareness of Human Immuno-deficiency Virus (HIV)/ Acquired Immuno-deficiency Syndrome (AIDS) in Secondary School Students of Ahmedabad City, Gujarat

Ravi Patel[1], Milan Chaudhary[1], Utkarsh Khare[1]

[1]Resident,Department of Community Medicine, B.J. Medical College, Ahmedabad, Gujarat, India

Correspondence : Dr. Milan Chaudhary, E mail: dr.milan91@gmail.com

Abstract :

Introduction: There is no cure for HIV/AIDS and no effective vaccine available till date. So, only prevention of transmission of HIV would be effective in significantly slowing the spread of AIDS. With this view the following study was undertaken to assess the level of awareness regarding HIV/AIDS among secondary school students and to evaluate impact of IEC among them. **Method:**An interventional study was conducted in randomly selected 3 schools with all the class 9th and 10th students. First, students were pre-tested for their awareness by semi-structured questionnaire then IEC was given which include poster and intra group open discussion. Post test evaluation was conducted after 24 hours to evaluate impact of IEC. Analysis was done in Ms Excel 2007. **Results:** Out of 298 students, 87.58% had heard about HIV/AIDS. Only 34% knew about full form of HIV/AIDS which increased to 71% after IEC intervention. There were many myths for HIV/AIDS transmission i.e. it is transmitted by Mosquito bite 58%, Sneezing and coughing of HIV positive person 58.72% which decreased to 13%, 15% respectively. Only 34% were aware HIV/AIDS is not curable which increased to 74.83 %. These all differences were found statistically significant. (Z test of proportion was applied) **Conclusion:** Educational programmes are recommended to facilitate students with correct scientific knowledge regarding HIV/AIDS.

Keywords : Awareness, IEC, HIV/AIDS

Introduction :

The Acquired Immune Deficiency Syndrome (AIDS) is a fatal illness caused by retrovirus known as the Human Immunodeficiency Virus (HIV) which breaks down the body's immune system, leaving the victim vulnerable to a host of life – threatening opportunistic infections, neurological disorders, or unusual malignancies. Among the special features of HIV infection are that once infected, it is probable that a person will be infected for life. Strictly speaking, the term AIDS refers only to the last stage of the HIV infection. AIDS can be called our modern pandemic, affecting both industrialized and developing countries. [1] An estimated 36.7 million people were living with HIV worldwide in 2016.[2]

Young people, especially young women and young key populations, continue to be disproportionately affected by HIV—In 2014, there were 3.9 million young people aged between 15 and 24 years living with HIV and 620 000 young people became newly infected with the virus. AIDS is now the second leading cause of death among young people world-wide.[3] In India, people in the age group of 15-29 years account for 31 percent of AIDS burden.[4]

Adolescents are at high risk of contracting HIV due to lack sufficient information and understanding of HIV/AIDS.[5] So, UNAIDS recommends the adoption of a 'life-cycle approach' to HIV prevention.[6]

Programme managers and policy makers have often recommended that schools can act at the centre point for disseminating information and education on HIV/AIDS. Hence school education has been described as a 'social vaccine' and it can serve as a powerful preventive tool.[7] With the above views in mind the following study was undertaken to find out the existing knowledge and change in knowledge about HIV/AIDS after education intervention and to find out the association.

Method:

An interventional was conducted during March to May 2018.The study was carried out at three randomly selected schools which were located in different areas of Ahmedabad. All students from classes 9th and 10th present on the day of the study were included. A total, 298 students were present. First, baseline data about HIV/AIDS awareness was collected by using semi-structured questionnaire. The questionnaire included questions for assessing knowledge (Full form of HIV/AIDS, Modes of transmission of HIV/AIDS, Prevention from HIV/AIDS). It was followed by educational session which included posters and intra group open discussion for duration of 1 hour. Post test was conducted after 24 hours. The Performa for pretest and posttest was same.

The results were expressed in percentages represented by tables and Analysis was done by Ms Excel 2007.

Ethical considerations were carefully and systemically adhered to throughout the study. Permission to carry out the research was obtained from school authorities. School students were enrolled after obtaining informed consent and participation was purely voluntary and they were also assured that the study will not have any detrimental effect on the participant. The students were assured that any information, thus obtained will be treated with utmost confidence.

Results:

Out of 298 participants, 87.58 % had heard about HIV/AIDS. Only 33.55% of students had knowledge regarding full form of HIV/AIDS but after giving health education, this was increased up to 71.14% (Z -value= 9.18, $p<0.05$)

Before intervention, 76.17 % of students were aware that HIV/AIDS can be transmitted through unsafe sexual relationships which increased to 84.22% after intervention. Awareness for other modes of transmission were 75.16% for contaminated blood transfusion, 81.87% for sharing needle and syringes, 77.51% for HIV/AIDS positive mother to baby. These observations increased up to 85.23%, 94.29%, 91.94 % respectively. These differences were found statistically significant (Z test of proportion was applied, $p<0.05$) (**Table 1**)

There were many misconceptions about transmission of HIV/AIDS which are shown in Table 2. 58.38% of students said that it is transmitted by mosquito bite, 58.72% said that it is transmitted due to sneezing and coughing of HIV/AIDS positive person, 33.89% said that it is transmitted by touching to HIV/AIDS positive person. After intervention, these misconceptions reduced to 13.42%, 15.10% and 10.73% respectively which were statically significant. (Z test of proportion was applied, $p<0.05$)

Table 1 : Awareness for various modes of transmission of HIV/AIDS

Modes of transmission	Awareness			
	Pre-test	Post-test	Z-value	p-value
Unsafe sexual relationship	227 (76.17%)	251 (84.22%)	2.4671	< 0.05
Contaminated blood transfusion	224 (75.16%)	254 (85.23%)	3.0838	< 0.05
Sharing needle and syringes	244 (81.87%)	281 (94.29%)	4.6786	<0.05
From HIV/AIDS positive mother to baby	231 (77.51%)	274 (91.94%)	4.8969	<0.05

Table 2 : Prevalence of misconceptions about HIV/AIDS transmission (N=298)

Misconceptions	Prevalence			
	Pre-test	Post-test	Z-value	p-value
Transmitted by mosquito bite	174 (58.38%)	40 (13.42%)	11.44	<0.05
Transmitted by sneezing and coughing of HIV/AIDS positive person	175 (58.72%)	45 (15.10%)	11.03	<0.05
Transmitted by touching to HIV/AIDS positive person	101 (33.89%)	32 (10.73%)	6.78	<0.05

Table 3 : Awareness regarding prevention for HIV/AIDS (N=298)

Preventive modes	Awareness			
	Pre-test	Post-test	Z-value	p-value
Safe sexual relationship (e.g. Use condom)	221 (74.16%)	240 (80.53%)	1.83	>0.05
Checked blood for blood transfusion	251 (84.22%)	266 (89.26%)	1.81	>0.05
Disposable needle and syringes	215 (72.14%)	228 (76.51%)	1.21	>0.05
HIV/AIDS is not curable disease	102 (34.22%)	223 (74.83%)	9.95	<0.05

Table 3 shows awareness regarding prevention from HIV/AIDS. 74.16% of students were aware that use of condom during sexual relationship, 84.22% aware that use of checked blood for blood transfusion and 72.14% aware that disposable needle and syringes are various measures for prevention from HIV/AIDS. After intervention, there were improvement in these percentages but it was not statically significant (Z test of two proportion was applied, p>0.05)

There was only 34.22% of students were aware that HIV/AIDS is not curable disease but there was significant improvement up to 74.83% (Z value=9.95, p<0.05) (Table 3.)

Discussion :

Awareness is the key to prevention of HIV/AIDS. This study assessed impact of health education on awareness of HIV/AIDS in secondary school students. In this study, 87.58% participants heard about HIV/AIDS. A study done by Shinde M et al showed similar finding (86.72%) whereas study conducted in Delhi and done by Lal et al, showed higher number of percentage (100%).[8,9]

In this study, considerable percentages of student were aware about various modes of transmission of HIV/AIDS and various methods of prevention. Another study done by Gupta et al also showed that good number of percentage of study participants were aware for various modes of transmission of HIV/AIDS.[10] But we found that there were many misconceptions regarding transmission of HIV/AIDS which were significantly reduced after intervention. 58.38% study participants said, it is transmitted by mosquito bite. Another study done by Shinde M et al also showed that 55.69 % study participants had misconception that HIV/AIDS is transmitted by mosquito bite.[8]

This study showed that after intervention, there was significant increase in percentage of students who were aware that HIV/AIDS is not curable. Before intervention, only 34.22% were aware that HIV/AIDS is not curable. Another study done by Gupta et al also showed that only 39.1% of participants were aware that HIV/AIDS is not curable. [10]

Conclusion :

To conclude, this study suggests that there are misconceptions regarding HIV/AIDS in secondary school students. Educational programs are needful and effective to facilitate the students with various domains of HIV/AIDS. So, there is need to strengthen school adolescent education programmes

Relevant curricula should be developed every year in secondary school students.

Recommendations

Strengthen school adolescent education programmes. Incorporation of group discussion, posters, drama during health education programmes is advisable. Relevant curricula should be developed every year in secondary school students.

Declaration:

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Conflict of Interest: Nil

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Factors Affecting Exclusive Breastfeeding and Complementary Feeding Practices among the Mothers of Children between Age Group of 12 to 23 Months in Udaipur, Rajasthan

Mohnish N. Tundia[1], Dhara V. Thakrar[1], Bhawarlal L. Vyas[2]

[1]Assistant Professor, Community Medicine Department, American International Institute of Medical sciences, Udaipur, Rajasthan, India

[2] Professor, Community Medicine Department, American International Institute of Medical sciences, Udaipur, Rajasthan, India

Correspondence : Dr. Dhara V. Thakrar, E mail: drdharathakrar@gmail.com

Abstract:

Introduction: Poor feeding practices are a major threat to social and economic development. Not breastfeeding significantly increases risk for a large number of acute and chronic diseases including lower respiratory infection, ear infections, bacteraemia, bacterial meningitis, urinary tract infection, and necrotizing enterocolitis. This study will provide evidence about factors affecting exclusive breastfeeding and complementary feeding practices and will highlight level of problem in community. **Aim and Objective:**To find out various factors affecting Exclusive Breast Feeding (EBF) & complementary feeding practices among the mothers of Udaipur city. **Method**: A total of 210 mothers were interviewed who were randomly selected from the outpatient department over a period of 6 months in this cross sectional study. An oral consent was taken from the participating mothers. **Results**: Out of total, 69.05% mothers gave prelacteal feeds to their babies. 54.76% of mothers had initiated breast feeding within 1-4 hour of birth. Only 33.81% babies were given exclusive breast feeding for six months. 17.14%, 13.81% and 22.38% mothers were counselled about breastfeeding by local health worker, doctor and relatives respectively, while 46.67% were not counselled at all.**Conclusion:**Prelacteal feeds was given in nearly two third of babies. Only one third mothers gave colostrum to their babies.Exclusive breastfeeding was received by only one third babies. Less than 10% of babies were breastfed for 2 years. The association was statistically significant between exclusive breastfeeding and factors like place of delivery, numbers of Antenatal visits, education and occupation of mother

Keywords: Exclusive Breastfeeding, Mother, Prelacteal Feed

Introduction:

Good nutrition is vital to ensure that the infant develops both physically and mentally to the fullest potential. Poor feeding practices are a major threat to social and economic development. Scientific research, such as the studies summarized in a 2007 review for the U.S Agency for Healthcare Research and Quality (AHRQ) and a 2007 review for the WHO (World Health Organization), have found numerous benefits of breastfeeding for the infant. According to the American Academy of Paediatrics, research shows that breast feeding provides advantages with regard to general health, growth, and development. Not breastfeeding significantly increases risk for a large number of acute and chronic diseases including lower respiratory infection, ear infections, bacteraemia, bacterial meningitis, urinary tract infection, and necrotizing enterocolitis.[1] Previous studies have demonstrated that, there is a possible protective effect of breast milk feeding against sudden infant death syndrome, insulin-dependent diabetes mellitus, Cohn's disease, ulcerative colitis, lymphoma, allergic diseases, digestive diseases, and a possible enhancement of cognitive development.[2]Poor infant feeding practices and their consequences are one of the world's major problems and a serious obstacle to social and economic development. It is not only a problem of the developing world, it occurs in many parts of the developed world as well.[3]

Today, malnutrition is a major public health problem in India. Malnutrition is not only influenced by factors, such as poverty, lack of health care,

unsanitary conditions, lack of food, but also by social, & cultural factors including poor caring practices & behavior of mother regarding breastfeeding & complementary feeding practices. [4] The link between malnutrition and infant feeding has been well established. In spite of implementation of national guidelines of Infant & Young Child Feeding (IYCF) practices in India, rate of exclusive breastfeeding and complementary feeding are still poor. According to NFHS 4, only 55% children were exclusively breast fed & only 43% children were started complimentary feeding between 6-9 months at national level. [5]The Government of India for the first time had included specific goals to improve infant feeding practices for reducing the Infant Mortality Rate (IMR), malnutrition and promoting integrated early child development in the 10 th Five-Year Plan. It also aimed to increase the rate of initiation of breastfeeding within 1 h to 50% from the current level of 15.8%, and to increase the exclusive breastfeeding rate to 80% during the first six months from the current level of around 41%. [6]

This study will provide evidence about factors affecting exclusive breastfeeding and complementary feeding practices and will highlight level of problem in community and thus will help health planner and policy makers to channelize resources to address this problem at community level.

Aim:

To find out various factors affecting exclusive breastfeeding & complementary feeding practices among the mothers of Udaipur city.

Objectives:

1. To study the pattern of breastfeeding & complementary feeding practices among lactating mothers of Udaipur city.

Table 1 : Factors affecting Breastfeeding Practices

Affecting factors	Frequency(No.)	Percentage (%)
Time of initiating breast feeding		
Within 1 hr. of birth	78	37.11
Between 1-4 hr. of birth	115	54.76
Between 1-3 days	17	08.09
First breast completely emptied before putting baby on other breast	84	40.00
Prelacteal feeds		
Yes	145	69.05
No	65	30.95
Type		
Sugar water	66	45.52
Honey	53	36.55
Castor oil	07	04.83
Cow/buffalo milk	19	13.10
Colostrum given		
Yes	74	35.24
No	136	64.76

2. To identify various factors affecting breastfeeding & complementary feeding practices.

Method:

A cross-sectional study was conducted on mothers of children between age group of 12 to 24 months, attending an Urban Health Training Centre running under American International Institute of Medical Sciences, Udaipur, Rajasthan. Ethical committee approval was taken to carry out study. An oral consent was taken from the participating mothers. A total of 210 mothers were interviewed who were randomly selected from the outpatient department over a period of 6 months. A structured, pretested and predesigned questionnaire was used to collect information on the socio-demographic profile (age, parent's education, occupation etc.), details on the initiation and duration of breastfeeding and weaning practices. Illiterate mothers were asked to answer the questions orally and were filled in by volunteers.

Results:

Table 1 shows that out of all mothers, 37.11%, 54.76% and 08.09% had initiated breast feeding within 1 hour, between 1-4 hour of birth and between 1-3 days of birth of baby, respectively. About 40% mothers emptied first breast completely before putting baby on other breast. Out of total, 69.05%

Table 2: Distribution of mothers according to their feeding practices

Feeding practices	Frequency(No.)	Percentage (%)
Exclusive breast feeding for 6 months		
Yes	71	33.81
No	139	66.19
Duration of Breast feeding		
6 months	23	10.95
12 months	108	51.43
18 months	63	43.45
24 months	16	07.62
Initiation of complementary feeding		
6 months	128	60.95
12 months	72	34.29
18 months	10	04.76
Feeding during illness		
Continued	127	60.48
Discontinued	83	39.52
Counselor whose advices were followed by beneficiary		
Local health worker	36	17.14
Doctor	29	13.81
Relatives	47	22.38
Not counseled	98	46.67

mothers gave Prelacteal feeds to their babies. In Prelacteal feeds, 45.52%, 36.55%,4.83% and 13.10% mothers gave sugar water, honey, castor oil and cow/buffalo milk to their babies respectively. 35.24% mothers gave colostrum to their babies.

Table-2 shows that 33.81% babies were given exclusive breast feeding for six months. 7.62%, 10.95%, 43.45% and 51.43% babies were breast fed for 24, 6, 18 and 12 months respectively. Complementary feeding was initiated at 6 months in 60.95% babies while it was initiated at 18 months in 04.76% babies. 60.48% mothers continued feeding during illness of babies. In our study, 17.14%, 13.81% and 22.38% mothers followedthe advises of local health worker, doctor and relatives respectively about breastfeeding, while 46.67% were not counselled at all.

Table 3 shows that Exclusive breastfeeding was more in hospital delivery (68.05%), than home delivery (15.94%), and the difference was highly significant (p<0.00001). Out of total hospital delivery, 38(53%) were normal and 34(47%) were done by cesarean section. EBF had more in those mothers who had >4 ANC check up (70.31%) as compared to<4 ANC check ups and the difference is also highly significant (p<0.00001). Proportion of EBF babies was different in different religion but difference was not statistically significant. In primi mothers, proportion of EBF (37.88%) were more as compared to multipara but the difference was not significant. Those who highly educated had given EBF (46.15%) up to 6 months ain comparison with lower education and difference was statistically significant (p=0.007). Almost similar proportion of EBF (32.35%, 33.33%, 35.48%) were seen in different age of mother (<19, 20-29, >30 respectively). EBF were seen more in socio economic class 1 & 2 (39.58%) as compared to other class but the difference was not significant. Housewives had more EBF (53.41%) as compared to working women and the difference was highly significant (p<0.00001).

Discussion:

This study was conducted on mothers of children between age group of 12 to 24 months, attending an Urban Health Training Centre running under American International Institute of Medical Sciences, Udaipur, Rajasthan. In our study, 37% of infants were feed within 1 hour of birth and while 17 % were fed within 1 day. A study done by Patricia et al. revealed that 11.6% infants in urban area and 9.4% infants in rural area were put to breast within the first hour; 33.3% infants in urban area and 25.6% infants in rural area were breastfed within the first day. [7]More than half of the infants in our study initiated breastfeeding within 1-4 hours and one third were fed with colostrum, while study from the Nepal showed that most of the infants initiated breastfeeding within 24 hours and were fed with colostrum.[8] Only 35% of the mothers gave colostrum in patil et al. study from Karnataka.[9]

In our study, almost two third of infants had given prelacteal feed and sugar water was the most common Prelacteal feed given to the infant. Around 91% mothers gave pre lacteal feeds to their children in study from Karnataka and commonest prelacteal feed given was sugar water followed by sugar water plus honey.[9] Prelacteal feed is a popular custom in the society of giving honey, sugar water and water to the newborn.[10] Study from the Eastern India reported that 24% of infants given Prelacteal feed.[11] Study by Sriram et al showed prelacteal feeds were given to 34.67% of infant.[12] This custom increases the chances of infection to the infant.

One third of mothers had given exclusive breast feeding upto 6 months to their baby in our study. Only 5 % of mothers given EBF upto 6 months to their babies in Patil et al. study.[9] In study from eastern India, 60% of infants received exclusive breast feeding upto 6 months.[11] A meta-analysis by Arun Gupta and Y. P. Gupta showed that more than half the children (54%) in the age group of 0-3 months were exclusively breastfed whereas this percentage was much lower (26%) for children in the age group of 4-6 months.[13] Medhi GK et al in their study among the tea garden workers in Assam also found that 69% mothers EBF their infants till six months of age.[14]

Majority of mothers (78%) practiced breast feeding upto 12 months of age while only 2% breast fed upto 24 months and 76% of mothers initiated

Table 3 : Association of exclusive breastfeeding with different factors

Variable	EBF (%) (n=71)	Non-exclusive breast feeding (%) (n=139)	Chi-square	P value*
Place of delivery				
Hospital**	49 (68.05%)	23(31.95%)	57.41	<0.00001
Home Delivery	22 (15.94%)	116 (84.06%)		
Ante Natal Care				
>4 ANC check up	45 (70.31%)	19 (29.69%)	54.81	<0.00001
<4 ANC check ups	26 (17.81%)	120 (82.19%)		
Religion				
Hindu	57 (36.77%)	98(63.23%)	2.9946	0.2237
Muslim	11(28.95%)	27 (71.05%)		
Other	03 (17.65%)	14(82.35%)		
Parity				
Primi	25 (37.88%)	41 (62.12%)	1.3081	0.5199
1 to 3	37 (33.63%)	73(66.36%)		
>3	09 (26.47%)	25 (73.53%)		
Education				
Illiterate	07 (17.07%)	34 (82.93%)	11.8492	0.0079
Primary/Middle	22 (28.57%)	55 (71.43%)		
High school	24 (45.28%)	29 (54.72%)		
College & Above	18 (46.15%)	21 (53.85%)		
Age of the mother				
<19 years	11 (32.35%)	23 (67.65%)	0.1215	0.9410
20-29 years	38 (33.33%)	76 (66.67%)		
>30 years	22 (35.48%)	40 (64.52%)		
Socio Economic Status				
I & II	19 (39.58%)	29 (60.42%)	0.9283	0.628674
III 29 (32.22%)	61 (67.78%)			
IV &V	23 (31.94%)	49 (68.06%)		
Occupation				
House wife	47 (53.41%)	41 (46.59%)	40.7071	<0.00001
Labourer	01 (1.85%)	53 (98.15%)		
Service	12 (29.27%)	29 (70.73%)		
Business	11 (40.74%)	16 (59.26%)		

*p<0.05 statistically significant, **Normal Delivery: 38, Cesarean Section: 34

complementary feeding by 6 months of age in Das et al. study. [11] In present study more than half of the women continued breast feeding upto 12 months and after that most of them continued upto 18 months and 60 % of mothers started complementary feeding at 6 months of age. A study from Ahmedabad showed 74.67% mothers initiated complementary feeding by 6 months but only 29.33% had the right attributes.[15] Majority of mothers (49.2%) introduced complementary feeding after completion of six months in study from Assam.[16] Similar to our study observations Basnet S et al found that 50% of the mothers started complementary feeds at 6 months of age.[17] In a study by Rao S et al 77.5% mothers were found to have started complementary feeding at the recommended time.[18] But a study by Kavitha S et al found that 62% of infants were weaned prematurely.[19] 88% of mothers had continued feeding during illness and Local health worker was the most frequent counselor regarding feeding followed by Doctor in study from South India,[11] while in our study 60% of mothers continued breastfeeding during in illness . Almost half of the mothers in present study were not counseled about feeding. The most frequent counselor regarding feeding was doctor in the study from Gujarat.[15] It is essential to educate the mother regarding exclusive breast feeding, timely and appropriate initiation of complementary feeding for adequate growth of the infant.

On bivariate analysis of certain maternal and socio-demographic factors influencing Exclusive Breast Feeding (EBF), it was seen that exclusive breast feeding was significantly associated with 4 or more numbers of ANC visits, place of delivery, educational status and occupation of mother in current study. Katila D et al in their study also observed similar results for ANC visits and education of mother.[16] Bharati SR in a study conducted in South India identified the factors that significantly influence the duration of breast-feeding was income, education and employment.[20] Swetha R et al also observed in their study that employment was significantly associated with duration of EBF.[21]

Conclusion:

In this study we can see that most of mothers had initiated breastfeeding between 1 to 4 hours of birth of baby. Prelacteal feeds was given in nearly two third of babies. Sugar water was mostly preferred as Prelacteal feed by mothers. Only one third mothers gave colostrum to their babies. Exclusive breastfeeding was received by only one third babies. Less than 10% of babies were breastfed for 2 years. Nearly two third of mothers continued to give breastfeeding during illness of babies. Almost half mothers were not counselled at all.The association was statistically significant between exclusive breastfeeding and factors like place of delivery, numbers of Antenatal visits, education and occupation of mother. While difference was not significant in case of factors like religion, parity, age of mother and socio-economic status.

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Clinico-Epidemiological Study of Patients Suffering from Sickle Cell Anaemia In a District Level Private Hospital of a Tribal District in South Gujarat

Shashwat Nagar[1], Hiren Patel[2]

[1]Associate Professor, [2]Assistant Professor, Department of Community Medicine, Parul Institute of Medical Sciences and Research, Vadodara, Gujarat, India

Correspondence : Dr. Hiren B. Patel, E mail: hirendr85@gmail.com

Abstract:

Introduction: Sickle cell disorder is an autosomal recessive condition, in which inheritance of an affected gene from both parents results in a disorder. According to hospital based epidemiological survey, the prevalence of sickle cell gene is observed among tribal population, which accounts for 15 % of the total population of Gujarat and are distributed in various districts. **Objectives:** To study clinical profile, epidemiological characteristics and socio-demographic features of persons having sickle cell disease and sickle cell trait and establish relationships if any of the epidemiological profile with the clinical and socio-demographic features of the study subject. **Method:** The study was carried out in Janak Smarak hospital in Vyara Town, Tapi District. It was a descriptive cross-sectional study for a period of one year and minimum of 75 persons with sickle cell disease and 150 persons with sickle cell trait was taken for the study. **Results:**Proportion of females affected were more than that of the male. Majority of the participants belonged to Gamit caste and most of them were Hindus. Majority of the participants were married and it was significantly associated with Sickle cell status of the individuals. Majority of sickle cell disease patients had clinical manifestations of sickle cell crisis like pain in both upper and lower limbs; weakness, fever and body ache and sign of pallor. Nearly half of the sickle cell disease patients had a history of blood transfusion.**Conclusion:** Family history and predisposition happens to remain one of the most important predictors of the Sickle cell status among the population. Nearly more than half of the Sickle Cell Disease patients needed regular transfusion with Blood or any of its components. This points out the necessity of establishing these units in higher numbers in tribal areas.

Keywords: Blood transfusion, Sickle Cell Crisis, Sickle Cell Disease, Sickle Cell trait, Tribal Community

Introduction:

Sickle Cell Disease (SCD) is genetic blood disorder that affects the Haemoglobin in Red Blood Cell. Sickle cell disorder is an autosomal recessive condition, in which inheritance of an affected gene from both parents results in a disorder while inheritance of one abnormal gene results in a healthy carrier.[1] It is characterized by vaso-occlusive pain crises, risk for pneumococcal infections, acute chest syndrome, and stroke and organ failure and is associated with substantial morbidity and premature mortality.[2] The main reasons for mortality among sickle cell disease patients are infection, acute splenic sequestration, severe anaemia and haemolytic crisis.[1]

According to hospital based epidemiological survey, the prevalence of sickle cell gene is observed to be 0-18 percent in northern- eastern India, 0 to 33 percent in western India, 22.5 to 44.4 percent in central part of India and 1 to 40 percent in southern India and the gene frequency of Hb-S varies between 0.031- 0.41. [3]Another survey done by the Indian Red Cross Society in Gujarat, where nearly 1, 68,498 tribal individuals from 22 districts were screened, the overall prevalence of sickle cell carriers was found to be 11.37 per cent.[4, 5] Some studies have also documented high prevalence of sickle gene in various tribal communities of Gujarat that include Bhils and Dhodias of Panchmahal, Dublas, Naikas, Koli, Dhanka, Gamit, Vasava, Bariya, Varli, Vaghari, Kukna, Halpati, & Chaudhari. Tribal population accounts for 15 % of the total population of Gujarat and are distributed in various districts of the state such as Sabarkantha, Banaskantha, Panchmahal, Vadodara, Narmada,

Bharuch, Surat, Valsad, Dang and the surrounding UTs like Div-Daman. [6]In Tapi District of Gujarat, Sickle Cell Disease is more prevalent among the socio-economically disadvantaged and medically underserved communities.

The study was carried out in Janak Smarak Hospital, a trust managed hospital located in Vyara where all diagnostic and treatment facilities for this condition are available to know the epidemiological and clinical pattern of patients reported with this inherited disorder.

Objectives of the study:

1. To study clinical profile of persons having sickle cell disease and sickle cell trait.
2. To study the epidemiological characteristics and Socio-demographic features of persons having sickle cell disease and sickle cell trait
3. Establish relationships if any of the epidemiological profile with the clinical and socio-demographic features of the study subjects

Method:

The study was carried out in Janak Smarak hospital in Vyara Town, Tapi District, Gujarat. It was a descriptive cross-sectional study between March 2014 to February 2015 i.e. for a period of one year. After getting permission from the institutional ethics committee of Sumandeep Vidhyapeeth, Piparia, persons having sickle cell disease or sickle cell trait (diagnosed at Janak Smarak Hospital, Vyara) were contacted to explain the purpose of the study and nature of his / her participation and to collect the basic personal and epidemiological information, clinical information like symptomatology, History of blood transfusion, Family history of Sickle cell Disease & Sickle cell Trait, after getting their written consent for participation in the study. Only those who consented for the study were included as subjects to collect the data further. Prior permission from the hospital authorities was also sought to carry out the study.

For estimation of sample size, a small pilot study was carried out between 1st April 2013 to 30th September 2013. During this period of 6 months, a total of 38 patients were diagnosed with Sickle cell Anemia and 164 individuals were diagnosed having sickle cell trait. This data was then compared with the past records of 3 years of the hospital and it was observed that the no. of sickle cell patients and traits who had reported to the hospital were almost similar in number, hence it was assumed that for a forthcoming period of one year a minimum of 75 persons with sickle cell disease and 150 persons with sickle cell trait would be available for study at the hospital. This was hence taken as the sample size for the study.

The study was carried out using a pre-designed and pre-tested questionnaire and the data was collected by directly interviewing the subjects and examining them.

The data collected was analyzed using MS Excel 2007 and suitable statistical tests were applied at 5% level of significance.

Results:

Table 1 suggests that proportion of females affected were more than that of their male counterparts. Majority of the participants belonged to Gamit caste and most of them were Hindus. Majority of the participants were married. Majority of subjects among both males and females were educated up to secondary with more proportion of illiterate among females was more than males. Most of the patients were from Social Class 1 and 2.

Table 2 shows that the prevalence of the SCD and Sickle Cell Trait (SCT) was higher in age groups above 18 yrs of age. However, the prevalence of both SCD & SCT was almost 30% in those aged <17 yrs. It was also noteworthy that the females were affected more than the males in both the groups. To assess the impact of Social Demographic variable with SCD & SCT, all of the socio demographic variables were analysed & association was sought using chi squared test which showed that out of all the variables, only marital status was significantly associated with Sickle cell status of the individuals. (X^2value= 17.68; $p<0.001$)

Table 3 shows that Majority of sickle cell Disease patients had clinical manifestations of sickle cell crisis like pain in both upper & lower limbs (58%); weakness (53%), fever (48%) and body ache (44.3%). Where as in sickle cell trait patients, it was

Table 1: Socio demographic profile of the subjects

Variable	Female (n=132)		Male (n=93)		Total (n=225)	
Age (Years)	**Number**	**Percentage (%)**	**Number**	**Percentage (%)**	**Number**	**Percentage (%)**
1 – 5	4	3.03	2	2.15	6	2.66
6-17	33	25	34	36.55	67	29.78
18-45	81	61.37	48	51.61	129	57.34
46- 100	14	10.60	9	9.67	23	10.22
Caste						
Gamit	99	75	66	70.96	156	69.33
Chaudhari	39	29.54	23	24.73	62	27.55
Others*	3	2.27	4	4.30	7	3.11
Marital Status						
Married	72	54.54	34	36.55	106	47.74
Unmarried	21	15.90	25	26.88	46	20.72
Widow/widower	4	3.03	0	0	4	1.77
NA(1-17 years of age)	35	26.51	34	36.55	69	30.66
Religion						
Hindu	123	93.18	86	92.47	209	92.88
Christian	9	6.81	7	7.52	16	7.11
Education						
Illiterate	25	18.93	7	7.52	32	14.22
Primary (1-7 standard)	32	24.24	33	35.48	65	28.88
Secondary (8-10 standard)	40	30.30	23	24.73	63	28
Higher Secondary (11-12 standard)	18	13.63	10	10.57	28	12.44
Diploma/ ITI / PTC	1	0.75	1	1.07	2	0.88
Graduate	12	9.09	15	16.12	27	12
PG/Diploma	2	1.51	2	2.15	4	1.77
NA	2	1.51	2	2.15	4	1.77
Occupation						
Student	53	40.15	50	53.76	103	45.77
Housewife	67	50.75	0	0	67	29.77
Farmer	6	4.54	24	25.80	30	13.33
Job	0	0	5	5.37	5	2.22
Teacher	5	3.78	5	5.37	10	4.44
ANM	1	0.75	0	0	1	0.44
Shopkeeper	1	0.75	0	0	1	0.44
Driver	0	0	1	1.07	1	0.44
NA**	2	1.51	2	2.15	2	0.88
Social Class* **						
CLASS -I	42	31.8	31	33.3	73	32.4
CLASS - II	77	58.3	50	53.8	127	56.4
CLASS - III	12	9.1	9	9.7	21	9.3
CLASS - IV	0	0	2	2.2	2	0.9
CLASS - V	1	0.8	1	1.1	2	0.9

* "Others" include Valvi and Kokani castes. ** NA suggest children less than 18 years of age (out of school)

*** Social class as per Modified B.G. Prasad`s Classification of 2015 (AICPI= Rs. 816/-)

Table 2: Association of various Socio-Demographic Variables with SCD & SCT status of the subjects

Variable	SCD (n=75)		SCT (n=150)		Chi –Square
Age (Years)	**Number**	**Percentage (%)**	**Number**	**Percentage (%)**	
1 – 5	3	4	4	3	χ^2 value=0.418, df=2, p=0.8112
6-17	21	28	46	31	
18-45	51	68	78	52	
46- 100	0	0	22	14	
Sex					
Female	41	55	91	61	χ^2 value=0.515, df =1, p=0.4728
Male	34	45	59	39	
Gamit	53	71	103	69	χ^2 value=0.094, df =1, p=0.7591
Chaudhari	22	29	42	28	
Others*	0	0	5	3	
Marital Status					
Married	27	36	79	53	χ^2 value=17.682, df =2, p=0.000145
Unmarried	29	39	17	11	
Widow/widower	0	0	4	3	
NA** (1-17 years of age)	19	25	50	33	
Religion					
Hindu	68	91	141	94	χ^2 value=0.036, df =1, p=0.8499
Christian	7	9	9	6	
Education					
Illiterate	9	12	23	15	χ^2 value=2.894, df =4, p=0.5757
Primary (1-7 standard)	24	32	41	27	
Secondary (8-10 standard)	17	23	46	31	
Higher Secondary (11-12 standard)	11	15	17	11	
Diploma/ ITI / PTC	0	0	2	1	
Graduate	12	16	15	10	
PG/Diploma	1	1	3	2	
NA	1	1	3	2	
Occupation					
Student	43	57	60	40	χ^2 value=6.738, DF=5, p=0.2408
Housewife	18	24	49	33	
Farmer	7	9	23	15	
Job	3	4	5	3	
Teacher	2	3	8	5	
ANM	1	1	0	0	
Shopkeeper	0	0	1	1	
Driver	0	0	1	1	
NA	1	1	3	2	
Social Class* **					
CLASS -I	20	27	53	35	χ^2 value=9.38, DF=3, p=0.0245
CLASS - II	43	57	84	56	
CLASS - III	8	11	13	9	
CLASS - IV	2	3	0	0	
CLASS - V	2	3	0	0	

* "Others" include Valvi and Kokani castes.

** NA includes (1-17 years of age).

Table 3 : Clinical Manifestation at the time admission of sickle cell disease & sickle cell trait patient

Symptoms	SCD (n=75)		SCT (n=150)		Total (n=225)	
	Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)
Weakness	40	53	31	21	71	32
Fever	36	48	47	31	83	37
Body ache/ Joint pain/ Back pain	33	44.3	110	74	156	69
Pain in both upper & lower limb	43	58	48	32	91	40.1
Breathlessness/ Chest pain/ Coughing	17	23	26	17	43	18
Giddiness/ Headache / Uneasiness	7	9.3	18	12	25	11
Abdominal pain/Vomiting	16	21	1	0.6	17	7.4
Signs						
Pallor	44	59	109	73	153	68
Icterus	10	13	20	13	30	13
Splenomegaly/						
Hepatomegaly	19	26	1	1	20	9
Oedema	2	3	20	13	22	10

*Many patients had multiple symptoms & Signs

seen that most of the patients had clinical manifestation of Body ache/Joint pain/ Back Pain 74 % followed by pain in both upper & lower limb 32%; fever 31% and weakness 21%.

Table also shows that, majority of both the Sickle Cell Disease and Sickle cell trait patients showed sign of pallor; followed by Splenomegaly/hepatomegaly in Sickle cell Disease patients & Icterus and Edema in the Sickle cell trait patients.

Figure 1: Family history of sickle cell disease & sickle cell trait among the patients

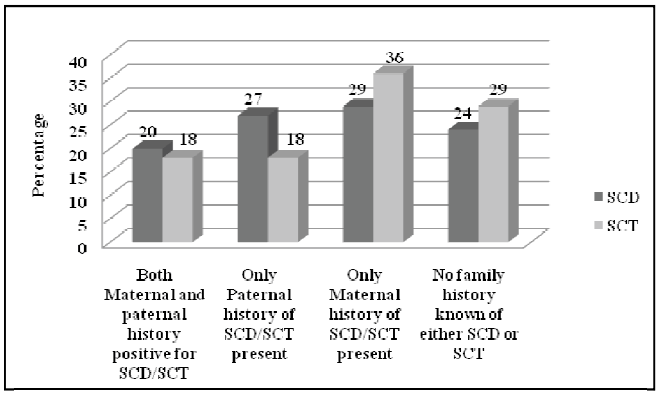
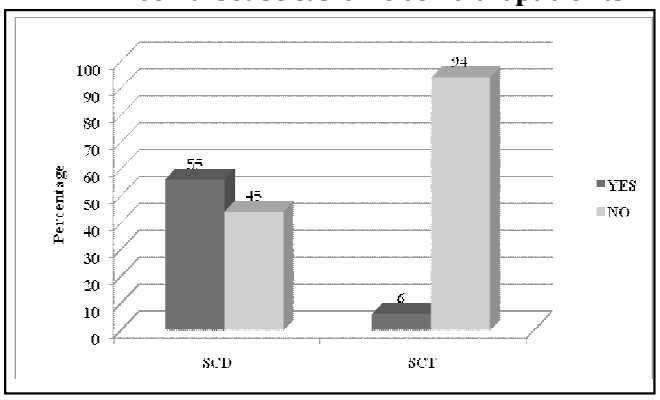


Figure 1 shows that nearly 30% of Sickle cell trait individuals and 25% of sickle cell disease patients had no family history of any sickle cell status, which implies that majority of them did have either a one parent or two parent history of sickle cell disease/trait. Nearly 20% had a two parent history and the remaining had only one parent history of SCD/trait. This clearly shows the family preponderance in the transmission of the sickle cell status.

Figure 2: History of Blood transfusion of sickle cell disease & sickle cell trait patients



It can be seen from Figure 2 that nearly half of the sickle cell disease patients and a very small proportion of sickle cell trait individuals had a history of blood transfusion. This clearly shows the importance of having blood storage centres and blood banks in more numbers in tribal districts as it can be a life-saving tool among the affected individuals. The requirement of blood transfusion among sickle cell disease patients was significantly higher as compared to the sickle cell trait patients and the same was statically significant using the chi squared test. ($\chi 2$ Test value=71.3, DF=1, $p<0.01$)

Discussion:

The present study was carried out during in Janak Smarak hospital of Vyara. A total of 225 participants, 75 of which were patients of Sickle Cell Disease & the remaining 150 had Sickle Cell Trait were included in the study. It was observed that proportion of females affected was more than that of their male counterparts which could have been because a higher sex ratio of Tapi district (1004 females per thousand males as per census 2011) [7]. A study conducted by Shrestha A et al [8] and Jain B et al [9] found that males were more affected than females.

Majority of participants belong to Gamit caste, followed by Chaudhari caste because of a higher population of these communities residing in the district (Data of Census 2011)[7] The present study revealed that marital status was significantly associated with occurrence of SCD & SCT status. This can lead to higher chances of future transmission of sickle cell in the progeny due to higher prevalence of consanguineous marriages in the tribal communities. A study by M Kamble et al [10] also describes about history of consanguinity marriage; out of which (8.2%) had sickle cell disease and (5.2%) had sickle cell trait. It is hence extremely necessary to carry out genetic counselling after knowing sickle cell status among potential couples before marriage to avoid the further transmission in the successive generations.

Present study showed that over all literacy rate was 84% while 14% patients were illiterate, which was almost similar to the census data for the state and the district. A study by Gustafson SL et al [11] described that the a higher the level of knowledge of Sickle Cell Disease, there is better acceptance of genetic counselling and testing as was primarily found among the high school graduates. The more educated people are the better is the access to health services and more is the acceptance of IEC related to the disease.

Current study showed that the clinical manifestations of fever & pain in both upper & lower limb (hand foot syndrome) was among the most common symptoms in the study population A study by K Swarnkar [11] also showed similar results. Therefore, it is prudent that the affected individuals must be made aware of these alarming symptoms requiring admission and immediate treatment so that their lives can be saved. Our study revealed that pallor was the commonest sign in both SCD and SCT. A study by Patra Pradeep et al [12] and a study by K Swarnkar [11] also show that pallor was common sign in both SCD & SCT trait patients.

Current study also observed that about 29% of the Sickle Cell Disease patients & 36 % of the Sickle Cell Trait patients had a positive maternal history of SCD/SCT.A Study by Warade J et al [13] also showed a positive family history for either sickle cell disease or sickle cell trait and thus how showed the impact of family history over the occurrence of disease. The present study revealed that majority of sickle cell disease & 6% of sickle cell trait patients had history of blood transfusion. The requirement of blood transfusion is extremely critical and must be planned at tribal areas in secondary and tertiary care hospitals to ensure higher quality of life and better treatment facilities for the affected.

Conclusion:

It can be concluded from the study that younger generation of the community especially females were more affected with both sickle cell disease and trait. Most common clinical manifestations among the subjects include Fever & Pain in both upper & lower limb (hand foot syndrome) and also the joints. Family history and predisposition happens to remain one of the most important predictors of the Sickle cell status among the population thereby reiterating the need of regular Genetic Counseling at hospitals (Both Govt and Private) in Tribal Areas of the state. Nearly more

than half of the Sickle Cell Disease patients needed regular transfusion with Blood or any of its components. This points out the necessity of establishing these units in higher numbers in tribal areas.

Recommendations:

It is a well-known fact that sickle cell disease is an incurable genetic disease and hence prevention of the disorder stays as the mainstay of its control in the community settings. It is necessary to educate the tribal communities about the disease & its prevention. Endogamy marriages among the sickle cell trait patients increase the chances of the occurrence of the disease as the subsequent generation has a higher chance of contracting sickle cell disease and thus emphasizes the need of regular genetic counselling sessions in hospitals and in the community to ensure that more and more people can be protected from the disease and its dangerous repercussions.

Studies of similar types especially in tribal areas can help in generating and strengthening evidence for availability of special services to the affected including Genetic counselling, screening and treatment services including availability of blood units on a priority basis.

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Innovative Methods to Overcome Barriers and Improve Immunization Coverage: A Comparative Study in Two Wards of Ahmedabad City

Shraddha Patel[1], Sheetal Vyas[2]

[1] Resident, [2] Professor and Head, Department of community Medicine, AMC MET Medical College, Ahmedabad, Gujarat, India

Correspondence : Dr Sheetal Vyas, E mail: dr_shvyas@yahoo.com

Abstract:

Introduction: Immunization is one of the most cost effective public health interventions since it provides direct and effective protection against preventable morbidity and mortality. **Objectives**: To identify the challenges and barriers associated with immunization coverage. Also to implement innovative strategies to overcome these challenges before session of Intensified Mission Indradhanush (IMI) and compare the coverage levels in areas with versus without use of innovative methods. **Method**: Two slum areas were selected from the South zone of Ahmedabad Municipal Corporation (AMC) and out of those one was from UHTC of AMC MET Medical College which was the intervention area in this study. Families with incomplete immunization of children <2 years were included in the study. In intervention area, personal visit by investigator, one to one health education, mobile reminders and support of local influencers was taken to increase the coverage. Data of both the areas were collected in a pre-designed and pre-tested proforma and analysed. Qualitative analysis of reasons for not accepting immunization services was also carried out. **Results**: Coverage of BCG, fIPV 1, OPV1 and Pentavalent-1 was 100% in both the areas. Coverage of OPV2 and Pentavalent-2 was 100% and 57% in intervention and non-intervention areas respectively. Overall coverage of all other vaccines was more in the UHC Isanpur which was the intervention area. Further even in the non-intervention area, more experience of ASHA was significantly associated with better coverage. Qualitative analysis revealed not informed about IMI round, fears and religious beliefs etc. as reasons for not accepting immunization services. **Conclusion**: Personal visits, Involvement of community leader, Motivation and mobile reminders about the round of IMI was highly effective in improving coverage of IMI from due list.

Key words: Intensified Mission Indradhanush, Immunization coverage, Motivation, Reminders, Vaccines.

Introduction:

The benefits of immunization are not restricted to improvements in health and life expectancy but also have the social and economic impact at both community and national levels. Global vaccination coverage – the proportion of the world's children who receive recommended vaccines – has remained the same over the past few years. During 2017, about 85% of infants worldwide (116.2 million infants) received 3 doses of diphtheria-tetanus-pertussis (DTP3) vaccine, protecting them against infectious diseases that can cause serious illness and disability or be fatal. By 2017, 123 countries had reached at least 90% coverage of DTP3 vaccine. [1] The 2018 Global Vaccine Action Plan report highlights that without sustained attention, hard-fought gains can easily be lost. Where children are unvaccinated, outbreaks occur and diseases that were eliminated become endemic once again.[2]To strengthen and re-energize the programme and achieve full immunization coverage for all children and pregnant women at a rapid pace, the Government of India launched "Mission Indradhanush" in December 2014. The ultimate goal of Mission Indradhanush is to ensure full immunization with all available vaccines for children up to two years of age and pregnant women. The Government has identified 201 high focus districts across 28 states in the

country that have the highest number of partially immunized and unimmunized children. To further intensify the immunization programme, Intensified Mission Indradhanush (IMI) was launched on October 8, 2017. Through this programme, Government of India aims to reach each and every child up to two years of age and all those pregnant women who have been left uncovered under the routine immunization programme/UIP. The special drive will focus on improving immunization coverage in select districts and cities to ensure full immunization to more than 90% by December 2018. Through UIP, Government of India is providing vaccination free of cost against vaccine preventable diseases include diphtheria, pertussis, tetanus, polio, measles, severe form of childhood tuberculosis, hepatitis B, meningitis and pneumonia (Hemophilus influenza type B infections), Japanese encephalitis (JE) in JE endemic districts with introduction of newer vaccines such as rotavirus vaccine, IPV, adult JE vaccine, Pneumococcal Conjugate Vaccine (PCV) and Measles-Rubella (MR) vaccine in UIP/National Immunization Programme.[3] To improve immunization coverage, most interventions that are part of the national immunization program in India address supply-side challenges. But, there is growing evidence that addressing demand-side factors can potentially contribute to improvement in childhood vaccination coverage in low- and middle-income countries. Participatory engagement of communities can address demand-side barriers while also mobilizing the community to advocate for better service delivery.[4] Evidence shows that unvaccinated and partially vaccinated children are most susceptible to childhood diseases and disability, and run a three to six times higher risk of death as compared with fully immunized children. There are wide variations in the proportion of unvaccinated and partially vaccinated children within states and districts. The latest NHM data shows that 86.9% children are fully immunized in Gujarat. [5] There is a long list of other challenges to India's immunization program. These include a shortage of trained personnel to manage the program at both the national and state levels; the need to undertake innovations in vaccines, disease surveillance, vaccine procurement, and effective vaccine management; the absence of good data on disease burden to inform vaccination priorities; the lack of baseline surveillance data for monitoring the effects of vaccination; and the absence of a system of routine reporting and surveillance. Challenges to improving coverage also lay on the demand side—that is, the degree to which individuals do their part to be vaccinated. Poor education levels, which are consistently correlated with the likelihood that individuals will not complete vaccination schedules, pose a major barrier to expanding vaccination rates in rural areas. Adverse events following immunization, even when these are shown to be unrelated to a vaccine, have been widely reported in the Indian news media and have contributed to a culture hostile to vaccination in certain Indian communities. Better communication about the benefits of vaccines and the potential but typically harmless side effects, such as sore arms and low-grade fevers, could greatly boost confidence in vaccines and the immunization program.[6]

In view of all this, the present study was carried out to identify the reasons for non and/or poor immunization, motivating the beneficiaries for acceptance of the immunization services by clearing their myths, sending them mobile reminders for the IMI session and increasing the participation by the involving community influencers for improving the coverage. Also the role of focused micro-planning was explored for improvement in the coverage levels.

Method:

A mixed methods interventional comparative study with qualitative component was carried out amongst children below 2 years of age who were in due list of immunization for IMI session atAMC's Urban Health Centers (UHC) Isanpur (UHTC of our institute) and Behrampura UHC (which was randomly selected out of all UHCs of South Zone of AMC) during the IMI round of November 2017. All the children in the due list of visited UHCs were included except mobile booth children. Study was carried out from 1st November to 15th November 2017. One week before IMI round due list of children was obtained from urban ASHA workers. Additionally, in our interventional area which was Isanpur UHC

following interventions were carried out:

- Personal visit was done by investigator to each of these families and an attempt was made to understand the reasons for refusal of immunization for their children. Families were cleared about their myths and fears related to vaccination and were on the spot educated about benefits of vaccination.
- Mobile number of a person from each family was noted down and they were reminded about vaccination, exact place and time of immunization session. This was done one day prior to IMI round.
- During house to house visit in intervention area, we came across four unimmunized children whose name was not in due list prepared by the health worker. So we asked ASHA to add them too in due list and motivated them to attend IMI session.
- Four community leaders were identified and they were requested to motivate families about benefits of vaccination. Community leaders personally visited all the houses of children whose families refused to vaccinate their children to remind them about visit in IMI session one day prior to IMI round.
- We tried to build positive rapport and trust between vaccine provider, community leaders and parents.

Predesigned and pretested proforma was used for data collection at both UHCs.

Additionally a semi-structured questionnaire for the personal interview of mother/ father/ grandmother/grandfather of the child in the family was also prepared for the purpose of qualitative analysis. During the interview responses given by all of them were noted down as common attitude of the whole family towards immunization of children of the family. At the end of IMI session data was compiled, analysed & compared. Qualitative analysis of the reasons for non-immunization which came forward during the process of intervention was also done.

Results:

Table 1: Coverage of different vaccines at Isanpur and Behrampura UHCs

Sr. No	Name of vaccine	UHC Isanpur			UHC Behrampura		
		Number of children			Number of children		
		In due list	Covered during IMI	%	In due list	Covered during IMI	%
1	BCG	10	10	100	5	5	100
2	OPV1	10	10	100	5	5	100
3	Pentavalent1	10	10	100	5	5	100
4	fIPV-1	10	10	100	5	5	100
5	OPV-2	8	8	100	7	4	57
6	Pentavalent2	8	8	100	7	4	57
7	OPV-3	7	9	128	12	8	66
8	Pentavalent3	7	9	128	12	8	66
9	fIPV-2	7	9	128	12	8	66
10	Measels-1	9	11	122	7	4	57
11	DPT-B	1	1	100	16	6	37.5
12	Measels-2	1	1	100	16	6	37.5
13	OPV-B	1	1	100	16	6	37.5
	Total	35	39	111	47	27	57

At Isanpur UHC which was our intervention area, vaccine coverage of BCG, OPV 1, Pentavalent-1and fIPV-1 was 100% as all 10 children from the due list were covered during IMI session. At Behrampura UHC (non- intervention area) vaccine coverage of BCG, OPV 1, Pentavalent-1 and fIPV-1 was 100% as all 5 children of the due list were covered during session. At Isanpur UHC vaccine coverage of OPV-2 and Pentavalent-2 was 100%as all 8 children of due list were covered during session. At Behrampura UHC, vaccine coverage of OPV-2 and Pentavalent-2 was 57 % as only 4 children were vaccinated from due list of 7 children.

At Isanpur UHC, vaccine coverage of OPV-3, Pentavalent-3 and fIPV-2 was 128% as due list had only 7 children but as mentioned earlier, more eligible children were enrolled by the investigator during the survey for the purpose of this study and hence 9 were covered during session . At Behrampura UHC, vaccine coverage of OPV-3, Pentavalent-3, fIPV-2 was 66 % as only 8 children were vaccinated from due list of 12 children. At Isanpur UHC, vaccine coverage of Measels-1 was 122% as 11 children were covered against the due list of 9 during session. The reason for the same is as explained earlier. At Behrampura UHC, vaccine coverage of Measels-1 was 57%as from due list of 7 children only 4 were covered during session. At Isanpur UHC vaccine coverage of Measels-2, DPT-B, OPV-B was 100% as there was one child in the due list and the same was vaccinated during session. At Behrampura UHC vaccine coverage of Measels-2, DPT-B, OPV-B was 37.5% as only 6 children were vaccinated from due list of 16 during session. At Isanpur UHC total vaccine coverage was 111% as 39 children were vaccinated from due list of 35 children. More than 100 % of vaccination coverage was because of interventional methods and additional registration of eligible children by the investigator during study. At Behrampura UHC total vaccine coverage was only 57% as only 27 children were vaccinated from due list of total 47 children. (Table 1)

There were 6 ASHA workers at each UHC which was included in the study. Mean age of ASHA in Isanpur was 42+ 3.2 year and mean age of ASHA in Behrampura was 34$\pm$ 4.96 years. This difference in age was statistically highly significant (t=3.320, p=0.0077) indicating that ASHA at Behrampura UHC were younger as compared to Isanpur.

Mean work experience of ASHA in Isanpur was 5$\pm$2.9 years whereas it was 3$\pm$0.89 years at

Table 2: Age and Experience of ASHA Workers in Isanpur & Behrampura UHCs

Variable	Isanpur UHC		Behrampura UHC	
Age (Years)	No.	Mean Age	No.	Mean Age
30-34	0	42$\pm$ 3.2 years	3	34$\pm$ 4.96 years
35-39	1		2	
40-44	4		1	
44-49	1		0	
Experience (in years)		Mean Experience		Mean Experience
0-2	1	5$\pm$ 2.9 years	2	3$\pm$ 0.89 years
2-4	1		2	
4-6	2		2	
6-8	1		0	
8-10	1		0	

Table 3 : ASHA's work experience Versus Vaccination coverage

Experience of ASHA (years)	Isanpur UHC		Behrampura UHC			
	No. of children		No. of children		Z value	P value
	As per due list	Covered	As per due list	Covered		
<4	9	11(122%)	19	8(42%)	1.7	0.008
≥4	26	28(108%)	28	19(68%)		

Behrampura. This difference in experience of ASHA was statistically not significant (t=1.61, p=0.1374). (Table 2)

When the coverage as per the experience of ASHA worker was analyzed for Behrampura UHC, there was statistically significant difference (p 0.008) with ASHA having more than 4 years of experience had more coverage as compared to ASHA having experience of less than 4 years. At Isanpur UHC, both categories had coverage more than 100%. (Table 3)

In the intervention area i.e. Isanpur UHC, during the visit by the investigator qualitative analysis revealed following reasons for non-receipt of the vaccines for their children by the families:

- Four families revealed that they were not contacted by the health worker regarding this IMI round hence they were not aware about the same.
- In one family the mother and grandmother of the child were having fear of fever after vaccination.
- In one family fear of occurrence of swelling at the site of vaccination was the reason for non-acceptance of vaccine for the child.
- In two families belief that child will get scared or get sick post vaccination was the reason.
- In five families mothers were illiterate and had no knowledge about the vaccination
- In two families there was perceived unaffordability and unawareness about free vaccination at government health facilities
- In one family there were cultural and religious beliefs due to which they were against vaccination of the children
- Three families said that there were rumors about vaccine contamination with chemical due to which they were not accepting the vaccines.
- Some families were ready for acceptance of oral vaccine but denied for injectable vaccines.
- In four families they were not getting female children vaccinated.
- One family refused to vaccinate child who was born after many miscarriages as that family believed that vaccination could negatively affect their child's health.
- Other reasons were lack of vaccine related education and misplaced immunization records (Mamta card/ private records). In majority of the families response was provided by mother, grandmother and grandfather. So they become influencers for the decision making regarding vaccination of the child in the family. However, all these issues were addressed during intervention by the investigators prior to IMI round.

Discussion:

The present Interventional comparative study with qualitative component was carried

out among Children below 2 years of age who were in due list of immunization for IMI session at AMC's UHC Isanpur (UHTC of our institute) and Behrampura UHC.PresentStudy used innovative methods like personal interaction, one to one health education, mobile reminders and reminders by the community influencers of the areas to overcome barriers in order to improve immunization coverage in a ward of Ahmedabad city. In another study by Debjani Berman et al District Level Household and Facility Survey-3 (DLHS-3) 2007-2008 data was used in exploring the quality of immunization in terms of month-specific vaccine coverage and barriers to access in West Bengal, India.[7] In a study by Ersin Uskun et al study of effectiveness of an intervention to increase knowledge of primary healthcare workers and vaccination coverage was done.[8] In present study one of the intervention method implemented was mobile reminder to parents of children. In another two studies, one by Peter G. Szilagyi et al and another by Jasim Uddinet al effect of Patient Reminder/Recall

Interventions on Immunization Rates was studied. [9,10] In present study another intervention method used was personal visit done by investigator to each of these families and motivation by respective community group leader and an attempt was made to understand the reasons for refusal of immunization. In study by Mira Johri et al personal home visits by volunteers and community mobilization were performed to promote acceptance of immunization.[11] Lack of adequate information from vaccine providers regarding the vaccination status of each child to whom they should administer the recommended vaccines can significantly influence vaccination coverage. In present study above barrier was found as one of the reason for non-immunization. In another three studies same reason was found to be a barrier in low immunization coverage. [12-14]

Low immunization rates in India are due to reasons such as lack of awareness among parents about the benefits of vaccination, fear of Adverse Events Following Immunization (AEFI), cultural diversity (with various religions, languages, traditions, beliefs and customs) mothers literacy, gender equity etc. In present study all these factors like Cultural and Religious beliefs, gender equity, false rumors about vaccine contamination with chemical, lack of vaccine related education, was found as reasons for refusal of vaccination. In study done by Devasenapathy N et al all the above factors were found for low immunization coverage in urban poor settlements of Delhi. [12]

Experience and well trained health worker plays important role to deliver immunization services efficiently. In our present study experience of workers played a significant role in immunization coverage. In study done by Ersin Uskun et all intervention to increase knowledge about immunization in primary health workers played a significant role to increase immunization coverage.[8] In the present study the local community influencers were sensitized to give reminders to the families about IMI round. Similarly in a study by J.P. Montgomery et al it was concluded that community leaders can be tremendously useful to health care providers, especially when it comes to improving vaccination coverage. [15] Multicomponent interventions strategies that use a combination of techniques to improve immunisation uptake are helpful to increase immunization coverage. In present study in our intervention area vaccination coverage was found to be more than 100% because of multiple interventions applied. In study by Nia Williamset al Health education programme including mass media campaign and distribution of immunization guidelines and updates , reminder cards plus educational posters in

examination rooms reported a statistically significant difference in immunization rate.[14]

Conclusion:

On the demand side of immunization services, personal visit by health care workers, specific health educational interventions aimed at improving vaccination by removing fears and myths related to vaccination amongst parents proved to be beneficial. Motivation by community leader played a crucial role in convincing the people about the need of immunization for their children. Reminder by mobile played very important role to increase the immunization coverage. Since many complex factors contribute to low immunisation rates, area specific combination of interventions will be required to improve immunisation coverage.

Recommendations:

Immunization service delivery is a complex process that can encounter barriers at many stages. Further, vaccine preventable diseases are still endemic or epidemic in India. Underlying issues need to be identified and addressed in order to improve vaccination coverage of India's children. Adoption of specific interventions for resistant areas has to be done often by involving local community influencers.

Declaration:

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Conflict of Interest: Nil

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Impact of Communication Skills Training Programme on Interns in a Medical College of India

Rashmi Katyal[1], Medhavi Agarwal[1], Deepak Upadhyay[1], Arun Singh[2], Himalaya Singh[3], Himanshu Tanwar[4]

[1]Associate Professor, [2]Professor, Department of Community Medicine, Rohilkhand Medical College, Bareilly, Uttar Pradesh, India

[3]Assistant Professor, Department Of Community Medicine, FH Medical College, Etmadpur, Agra, India

[4]Research Associate

Correspondence : Dr. Medhavi Agarwal, E mail: dr.medhaviagarwal@gmail.com

Abstarct:

Introduction: Communicative skills in medical education are inadequately met. Research has shown that poor communication can contribute to improper diagnosis and lack of understanding of patient's problems, investigations, and treatment options. Poor communication can lead to poor compliance to treatment and dissatisfaction among patients. **Objective:** Assessment of the improvement in the communication skills after the training programme workshop. **Method:** The interns posted in the department of community medicine were pre-tested using Kalamazoo Essential Elements Communication Checklist (Adapted) [KEECCA] who then underwent focused training by the trained faculty members. Two weeks following completion of training, all participants were subjected to a post-test and comparison between the pre-test and post-test scores was done using Wilcoxon Signed-Rank Test. The test was two sided and a p value less than 0.05 was considered as statistically significant. In order to know the effect of sensitization programme, feedback of the students and the faculty members as the assessors was taken after the completion of the posting. **Results:** On the application of wilcoxon signed rank test, it was found that the difference between the pre and post test scores of assessment on kalamazoo scale after the training of interns on communication skills was found to be statistically significant as the t-value was 4.072 with the p-value less than 0.001 that is also highly statistically significant. **Conclusions:** The incorporation of communication skills in the medical curriculum will not only improve the doctor patient relationship but also help in arriving at the proper diagnosis through improved skills.

Keywords: Communication, Intern, Training

Introduction:

Interpersonal and communication skills are considered a core area of competency for medical students, residents, and practicing physicians in medical education.[1, 2] WHO has defined five attributes for a physician: a caregiver who assesses and improves the quality of care, who makes optimal use of new technologies, who promotes healthy lifestyles, who reconciles individual and community health requirements and who is able to work efficiently in teams. In order to achieve the aforementioned goals development of communication skills is important. [3] Fortunately this issue has attracted increasing attention in recent years globally, which is based on the evidence that adequate doctor–patient communication is related to better health outcomes, better compliance and higher satisfaction of both doctor and patient. [4] Effectiveness of doctor-patient communication has been linked to patient recall and understanding, symptom resolution, reduction in psychological distress and perception of physician competence. [5-9] Thereby, there is growing awareness that effective communication between doctor and patient and appropriate attitudes of doctors are core clinical requirements for the medical profession. [10]

The attitude of medical students toward learning communication skills has long been a matter of concerns for medical teachers, curriculum planners and policymakers. [11,12] While the past focus of medical education was largely on the competent performance of practical procedural and examination skills, this has now transformed into a more holistic approach that involves the compassionate delivery of care.[13]

Objective:

Assess the improvement in interpersonal skills and skills pertaining to (history taking, listening, explaining the illness, explain dosage and duration of treatment, advice on prevention of similar illnesses in future) after the communication skills training programme.

Method:

The permission of the institutional ethical committee was taken before conducting the study. Written permission through e-mail was taken for the use of Kalamazoo Essential Elements Communication Checklist (Adapted) ;[The KCS-Adapted instrument was minimally modified at Harvard Medical School by Rider and colleagues2 using global ratings on a Likert scale (1 = poor to 5 = excellent) for the 7 KCS competencies.] The informed consent of interns [Medical intern is a term used in some countries to describe a physician in training who has completed medical school and has a medical degree, but does not yet have a full license to practice medicine unsupervised] ,who participated in the study was also obtained. The study duration was for one year including data collection for 3 months. The study subjects were the interns posted in the department of community medicine in Rohilkhand Medical College and Hospital [Bareilly, Uttar Pradesh] in this duration of data collection.

Faculty members who underwent basic training in communication skills as a part of basic course workshop and ATCOM [Attitude and Communication (AT-COM)] sensitization in medical education technologies were sensitized and oriented for the workshop for training the interns using the validated MCI module on ATCOM sensitization. The same faculty members being a part of the medical education unit who participated in the training of the interns assessed individually all interns on patients and their average was taken to avoid bias.

The Kalamazoo Essential Elements Communication Checklist (Adapted) was used to identify the 10 skills for assessment.

First of all, the pilot testing was done to know the feasibility of the study. After the pre-test, all interns underwent focused training by the trained faculty members comprising of multiple sessions in a day. Two weeks following completion of training, all participants were subjected to a post-test to avoid bias introduced due to immediate post-test.

Results:

On application of wilcoxon signed rank test, it was found that the difference between the pre and post test scores of kalamazoo scale after the training of the interns on communication skills through the workshop was found to be statistically significant as the t-value was 4.072 with the p-value less than 0.001 which is highly statistically significant.

On comparing individually the questions asked in the kalamazoo scale as a pre and post test, it was found that building the relationship (t-value-3.691), opening the discussion (t-value-3.510), gathering the information (t-value-2.952), understanding the patient's perspective (t-value-3.450), sharing information (t-value-4.155), reaching agreement (t-value-3.400) and providing closure (t-value-4.114) were all found to be statistically significant (P-value <0.05) [1,2]. (Table 1and Figure 1)

Discussion:

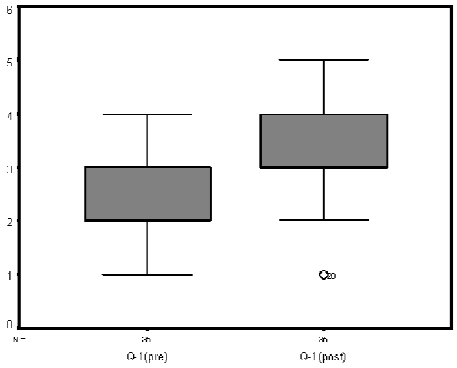
In the indexed study, it was evident that there was a significant improvement in the scores of post test after the training of interns on communication skills through the workshop as compared to the pre-test scores. It was found that the difference between the pre and post test scores of kalamazoo scale was found to be statistically significant on application of wilcoxon signed rank test [t-value 4.072 ; p-value less than 0.001; highly statistically significant.

Similarly, Barbara L. Joyce[1] found significant improvement in their study when rated by the faculty, self rating and that done by the simulated patients where it was found that Residents' cumulative self ratings on the KEECCA [Kalamazoo Essential Elements Communication Checklist (Adapted)] ranged from 14 to 35 with a mean (SD) of 26.87 (5.01) where most (79.8%) residents rated their communication skills as “good” or better; Faculty ratings ranged from 13 to 35 with a mean of 25.25 (5.08) where a majority of faculty (79.9%) rated residents' skills as “good” or higher, and 27.9% of faculty provided “very good” or “excellent” ratings while cumulative ratings ranged from 13 to 35 with a mean of 21.72 (4.53); a smaller proportion of (54.1%) rated residents as “good” or better, and only 15.6% provided ratings of “very good” or “excellent.”

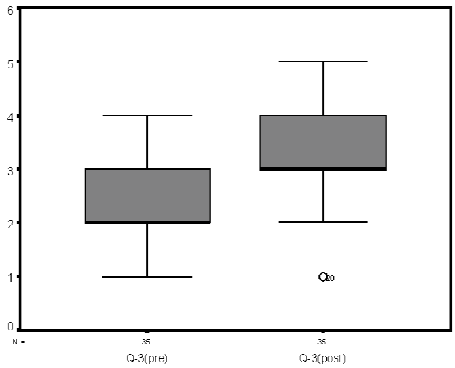
Table 1: Comparative statistics of Wilcoxon signed rank test based on Kalamazoo Essential Elements Communication Checklist (Adapted)

	Mean ± S.D. Pre-test	Mean ± S.D. Post test	Z -value	p-value
TOTAL SCORE	14.7± 5.1	21.7± 5.1	0.001	<0.001
Q-1 Builds a Relationship	2.37 ±0.910	3.4±0.914	3.691	<0.001
Q-2 **Opens the Discussion**	2.37±0.942	3.37±1.031	3.510	<0.001
Q-3 **Gathers Information**	2.43±0.815	3.23±0.843	2.952	<0.05
Q-4 **Understands the Patient's Perspective**	2.29±0.987	3.23±1.003	3.450	<0.001
Q-5 **Shares Information**	1.97±0.822	2.83±0.891	4.155	<0.001
Q-6 **Reaches Agreement**	1.63±0.942	2.69±0.932	3.400	<0.001
Q-7 **Provides Closure**	1.66±1.110	3.0±0.939	4.114	<0.001

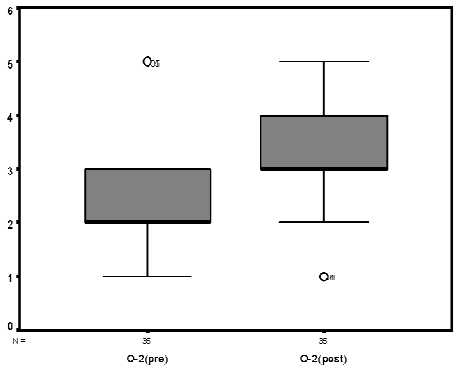
Figure 1: Comparative statistics representation of the data by whisker and box plot



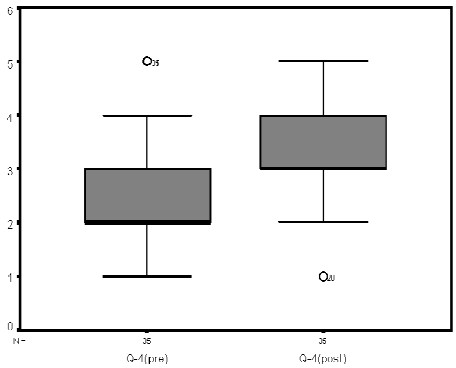
Q-1Builds a Relationship



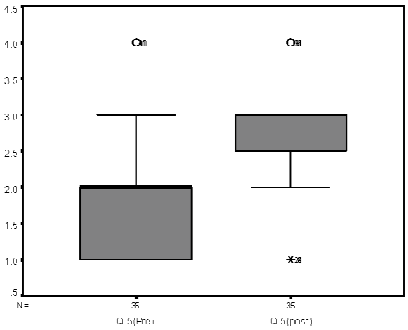
Q-3 Gathers Information



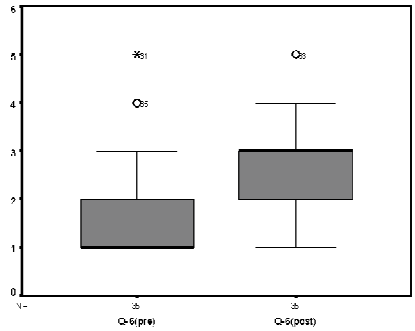
Q-2 Opens the Discussion



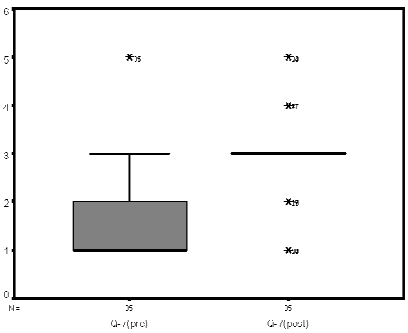
Q-4 Understands the Patient's Perspective



Q-5 Shares Information



Q-6 Reaches Agreement



Q-6 Reaches Agreement

Similar results were found in the study conducted by Nayyar Iqbal[2] where ninety-six per cent of participants (50 out of 52) showed improvement in their performance after the focused training though the assessment done using Calgary cambridge scale [Communication skills assessment scale]. The mean marks of the pre-test and post-test were 10.77± 3 and 18.04±2, respectively, out of a maximum mark of 20 (p<0.05).

Conclusions:

The research work enlightens the medical educators that introduction of communication skills programme of the interns showed improvement in their communication skills leading to a step towards the accomplishment of the goal of a competent Indian Medical Graduates. Therefore, it is strongly recommended that this kind of training programme should be incorporated in the curriculum, not only as a part of the internship training programme but also as a part of the undergraduate training in medical institutions.

Acknowledgement:

I owe my research work to the almighty that motivated this impossible to do innovative intervention extended to not only the interns but also the medical undergraduates as well as postgraduates with the immense co-operation of our Dean, the FAIMER faculty, FAIMER fellows and my colleagues.

Declaration:

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Conflict of Interest: Nil

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Profile of Patients of Ocular Trauma Visiting Municipal Eye Hospital Ahmedabad in the Months of August and September 2016

Bhavesh Prajapati[1], Aparajita Shukla[2]

[1]Resident, [2] Professor and Head, Community Medicine Department, Smt. NHL Municipal Medical College, Ahmedabad, Gujarat, India

Correspondence : Dr. Bhavesh Prajapati, E mail: drbhavesh89@gmail.com

Abstarct:

Introduction: Globally, more than 55 million eye injuries occur per year, while there are approximately 1.6 million people with blindness from ocular trauma. The prevalence of ocular trauma in India was reported as 2.4%. Measures to create awareness about ocular trauma and preventive measures would result in a great decrease in ocular morbidity and mortality due to trauma. **Objectives:** To assess the proportion of different types of ocular injuries among the patients. To correlate the different causative factors and conditions leading to Ocular Trauma. To make recommendations for public health and clinical strategies for the prevention, management, and research of ocular trauma in the future. **Method:** The study design was cross-sectional, done in Municipal Eye Hospital Ahmedabad with help of semi-structured pilot tested questionnaire from August 2016 to September 2016. The type of sampling is non-random with sample size of 141. **Results:** Out of 141 cases, maximum injuries were observed in male patients and in the 15-29 years age group (34%). Extra ocular foreign body injury (max. in 15-29 age groups) was seen maximum followed by blunt trauma (max. in children). Patients with extra ocular foreign body injuries reported the earliest. Only 15% of patient reported with complication (max. in Open Globe injuries). Vision was affected in 9.9% patients with maximum in wooden stick injuries and 19% eyes required surgical intervention. **Conclusion:** Eye should be protected while driving to prevent exposure of foreign body. Patients who reported within 24 hours had the least complications. So, Awareness should be created by the authorities through mass media regarding ocular trauma and benefits of early reporting.

Key words: Blunt Trauma,Extra ocular foreign body, Open Globe injuries

Introduction:

Ocular trauma is one of the leading causes of preventable blindness in world today, 90% of all eye injuries are preventable.[1,2] Globally, more than 55 million eye injuries occur per year, while there are approximately 1.6 million people with blindness from ocular trauma, 2.3 million people who are bilaterally visually impaired, and 19 million people with unilateral blindness or visual loss.[3] The incidence of ocular trauma may be higher in developing countries. The prevalence of ocular trauma in India was reported as 2.4%.[4]Ocular trauma is a major cause of preventable monocular blindness and visual impairment in the world.[5]Decrease or loss of vision, either monocular or binocular, may result in significant economic burdens to families and countries due to time lost from work, or school, and family care giving, expensive hospitalization, special visit and treatment, prolonged follow-up, and visual rehabilitation. Prevention is always better than cure: measures to create awareness about ocular trauma and preventive measures would result in a great decrease in ocular morbidity and mortality due to trauma. Early detection and management hold the key to trauma management and prevention of further complications. In this study we have profiled ocular trauma that were reported to Municipal Corporation run tertiary care Eye Hospital, its clinical presentation, cause and nature of trauma, the extent of damage and the loss of vision associated with it, along with other parameters.

Objectives:

1. To assess the proportion of different types of ocular injuries among the patients

2. To correlate the different causative factors and conditions leading to Ocular Trauma
3. To make recommendations for public health and clinical strategies for the prevention, management, and research of ocular trauma in the future.

Method:

It was a cross-sectional study carried out in Municipal Eye Hospital of Ahmedabad with help of Self-structured Pilot tested Questionnaire. The time period of the study was from 1st August 2016 to 30th September 2016. A total of 141 patients were selected for the purpose of study.

Inclusion criteria: All cases of ocular trauma reported during the study period were included in the study. Exclusion criteria: Those who did not give consent were excluded from the study.

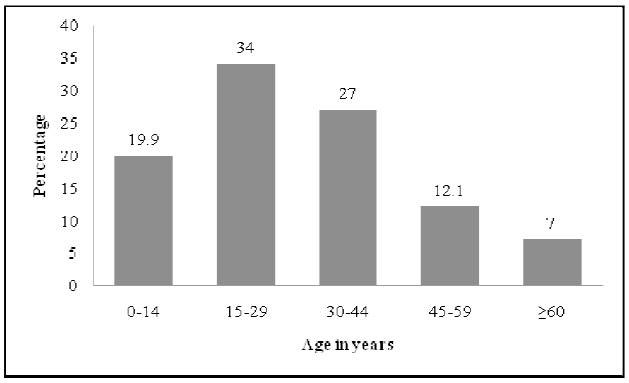
Ethical considerations: Permission was obtained from the head of institution, heads of ophthalmology and community medicine and the Superintendent of Municipal eye hospital. Verbal consent of study population was obtained and they were ensured of confidentiality and were explained about the purpose of study.

Data collection and analysis: Demographic data and a detailed history of each subject were taken. The clinical data of affected eye, ophthalmologic status post injury, causes and types of ocular trauma, time interval from injury to presentation, duration of hospitalization, and follow-up were collected from the clinical records. It was analyzed using appropriate statistical parameter. Associations between variables were checked by Chi-Square test and significance was considered when $p<0.05$. The patient's records were kept confidential. Operational definitions were according to World Health Organization (WHO) and Birmingham Eye Trauma Terminology System (BETTS).[6]

Results:

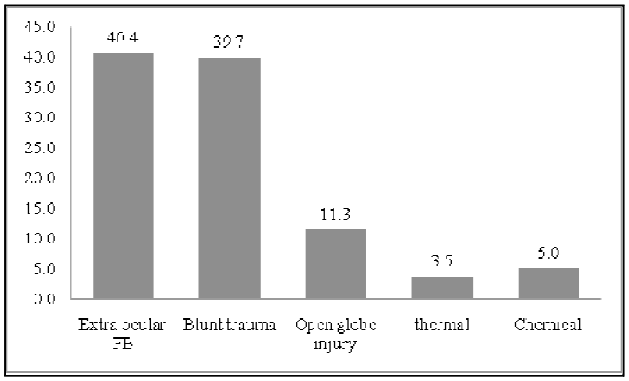
Mean age was 28.96 ± 16.4 years.The largest age group was 15–29 years followed by 30–44 years, presenting two peaks of the age distribution and accounting for 34% and 27%, respectively.(Graph 1)

Graph 1: Age Distribution of patients [n = 141]



Males had a higher rate than females (74.5% versus 25.5%), with a male-to-female ratio of 3:1. Extra ocular foreign body Injury (40.4%) was seen maximum followed by Blunt Trauma (39.7%). (Graph 2)

Graph 2: Type of injuries [n = 141]



Extra ocular foreign body injuries were significantly higher in 15-29 year age groups andBlunt trauma was significantly higher in 0-14 year age group. (P value = 0.01).(Table 1)

Only 15% of patients reported with complications and it was significantly higher in Open Globe injuries.(P value = 0.001). (Table 2)

There was a wide variety of injury causes that resulted in ocular trauma. Most of the injuries were caused by foreign body (36, 25.5%). (Table 3)

Foreign body was the main cause in all age groups except for patients aged 0 to 14 years old, for whom the main causes were injury by wooden stick. (Table 4)

Of the patients, 82.6% presented within 24 hours after eye injuries. A further 13.9% presented between

Table 1: Age v/s type of injury [n=141]

Age (in Completed Yrs)	Type of Injury									
	Extra ocular FB		Blunt Trauma		Open Globe		Thermal		Chemical	
	No.	%	No.	%	No.	%	No.	%	No.	%
0-14	3	5.3	19	33.9	4	25	1	20	1	14.3
15-29	24	42.1	13	23.2	4	25	1	20	6	85.7
30-44	17	29.8	13	23.2	5	31.3	3	60	0	0
45-59	12	21.0	5	8.9	2	12.5	0	0	0	0
≥60	1	1.8	6	10.8	1	6.2	0	0	0	0
Total	57	100	56	100	16	100	5	100	7	100

Table 2: Complication v/s type of injury [n=141]

Type of Injury	Complication	
	Frequency	Percent
Extra ocular FB	0	0
Blunt Trauma	6	28.57
Open Globe	14	66.67
Thermal	1	4.76
Chemical	0	0
Total	21	100

Table 3: Cause of injury [n=141]

Cause of injury	Frequency	Percent
Extra ocular FB	0	0
Blunt Trauma	6	28.57
Open Globe	14	66.67
Thermal	1	4.76
Chemical	0	0
Total	21	100

Table 4: Age v/s Cause of Injury [n=141]

Age (in Completed Yrs)	Cause of Injury													
	Ball		Dust		FB		Finger		Iron		Wooden Stick		Other	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
0-14	2	20	1	16.7	1	2.8	3	33.3	1	5.3	7	50	13	27.6
15-29	4	40	3	33.4	19	47.2	2	22.3	7	26.3	2	14.3	17	34
30-44	2	20	1	33.4	10	30.6	2	11.1	8	47.4	3	21.4	9	21.4
45-59	2	10	1	16.7	6	19.4	1	22.2	3	21	0	0	6	8.5
≥60	0	10	0	0	0	0	1	11.1	0	0	2	14.3	2	8.5
Total	10	100	6	100	36	100	9	100	19	100	14	100	47	100

Table 5: Time elapsed since injury [n=141]

Type of injury	Time elapsed since injury						Total	
	< 24 hours		24 - 48 hours		>48 hours			
	No.	%	No.	%	No.	%	No.	%
Extra ocular FB	42	44.2	12	75	1	25	55	47.8
Blunt Trauma	41	43.1	3	18.8	2	50	46	40.0
Open Globe	2	2.1	0	0	1	25	3	2.6
Thermal	3	3.2	1	6.2	0	0	4	3.5
Chemical	7	7.4	0	0	0	0	7	6.1
Total	95	100	16	100	4	100	115	100

one and two days from the occurrence of the injury. Only 3.5% presented more than 2 days after sustaining the eye injuries. Out of all the cases, patients with extra ocular foreign body injuries reported the earliest. (P value = 0.001) (Table 5)

Out of all the cases, 57 (40.4%) patients had injuries in their left eyes whereas 79 (56.1 %) had injuries in their right eyes. Both eyes were involved in 5 (3.5%) patients. In terms of management, 71% eyes were medically treated, and the rest 19% eyes required surgical intervention. Out of those surgically treated patients, maximumsurgeries were required in open globe injury. All the cases of extra ocular foreign body are treated medicallyfollowed by blunt trauma.Ocular wall repair (13 %), lensectomy, or phacoemulsification (34.8 %) was the most common surgical procedures and Posterior vitrectomy was required for 21.7 % eyes. Removal of foreign body was performed in 14 (9.9 %) eyes and saline wash was given to 16 (11.34 %) eyes. Out of the 141 cases, 60 (42.6%) cases had visual outcome of 6/6 – 6/9, but 14 (9.9%) patients were documented to have a blinding outcome i.e., visual acuity of <6/60.

Discussion :

In our study, males had a higher rate than females. Other studies also reported a higher rate in males. [7-11] This might be due to different occupational exposure between different genders. Most females are housewives and engaged in occupations with low risk; however, males are prone

to do rough work and more likely to take part in dangerous sports and activities.

Mean age was 28.96 ± 16.4 years (1-74 years). Most of the eye injuries were found in young-aged groups (15–29 years) followed by middle-aged groups (30–44 years) which is coincident with other studies. [12,13] This may be explained by the fact that the working population is of high risk and accounts for the largest portion of ocular trauma. People between the age of 30 to 44 years old and 15 to 29 years old are exactly the major labors and play major roles in supporting families, resulting in a significantly larger portion than others.

After injuries, over four-fifths of patients (82.6%) presented on the same day as sustaining their injuries, and 3.5% patients still had a delay of 3 days before clinical review. In the JUDO study 31.6 % patients presented within 48 hours whereas 28.6% arrived one week or later. [14] Cao et al. [15] thought that delayed presentation was a matter of concern about final VAs. This suggests that the public's awareness of seeking medical care in timely manners should be improved. Our study showed a significant association between duration of presentation and presence of complication at presentation which may affect the final visual outcome.

In our study, Extra ocular foreign body injuries (40.4%) were the most common type of ocular trauma, and metallic objects, widely used in workplaces, remained the leading (25.5%) agents that cause eye injuries, which were consistent with other studies. [15,16] The main contributing factor for the higher proportion of work-related injury is the local work tasks, which commonly involve high-powered tools that generate metal fragments at high velocities. However, another important factor is disregarding the safety of workers.

Of the documented ones, in the JUDO study, wood is the commonest material accounting 40.9% followed by metal 18.1% and stone 13.3%. [14] Regarding the material of injury the commonest material accounting for trauma was metal in 13.5 % patients, followed by wood, in our study.

With regard to surgical procedures, of the 141 injured eyes, 13 % had ocular wall repairs, 34.8 % had lensectomy or phacoemulsification, and 11.34% had anterior chamber washouts, which suggest that injury is preferred in the anterior segment of the globes than the posterior segment, highlighting the significance of the anterior segment. This suggests that wearing eye-protection devices should be introduced, because such anterior segment injuries would have been easily blocked by eye-protection devices. [17]

Out of the 141 cases, 60(42.6%) cases had visual outcome of 6/6 – 6/9, but 14(9.9%) patients were documented to have a blinding outcome i.e., visual acuity of <6/60. Study of JUDO showed 21.1% of the ocular injuries were documented to have a blinding outcome i.e., visual acuity < 6/60. [14]

Conclusion :

There were some limitations in our study, comprehensive information about medical records was not sufficient enough to display and information provided by the patients may not be completely accurate.However, with these limitations, our data still provided useful information concerning the clinical characteristics of ocular trauma.

In conclusion, susceptible population of eye injuries were middle and young-aged groups, and the proportion of males was higher.Delay in presentation, has a significant association with presence of complications which may have a detrimental visual outcome.

Recommendations :

Thus it is recommended preventive measures advocated by health workers to emphasize the importance of early health seeking behaviour and follow up of patients with ocular trauma. Efforts should be invested in education for eye protection in order to prevent ocular trauma in the young and middle-aged working groups. Simple safety procedures like wearing goggles in driving, protective goggles in welding, supervising children while playing, etc. should be advocated using mass media. A standardized reporting system, as exists in other countries, is recommended and would help to

evaluate changes in the epidemiology of eye injuries over time and provide population-based longitudinal data for preventive strategies.

Declaration:

Funding: Nil

Conflict of Interest: Nil

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Patient Satisfaction Survey: To Improve Quality of Care at Tertiary Care Center, South Gujarat

Naresh Chauhan[1], Hiteshree Patel[2], Harsad Patel[3], J. K. Kosambiya[4]

[1]Assistant Professor, [2]Tutor, [3]Associate Professor, [4]Professor and Head, PSM Department, Government Medical College, Surat, Gujarat, India

Correspondence : Dr. Hiteshree Patel, E mail: hiteshripatel2181@yahoo.co.in

Abstarct:

Introduction: Mismatch between patient expectation and the service received is related to decreased satisfaction. **Aims and Objectives**: To measure level of satisfaction and identify the obstacles in availing services among the patient at Tertiary Care Center, South Gujarat. **Method:** It was a cross sectional study, included 800 respondents, 400 each from indoor and outdoor facilities. Respondents from all the department have been taken by proportion to their OPD and IPD load (PPS) after informing and taking their consent. Data has been collected by using android smart phones. **Results:** General perception of the clients for the OPD services were 60% believed that the time to get services is appropriate, 98% respondents satisfied with staff behavior, 60% satisfied with the cleanliness OPD at the same time few dissatisfied with public utilities (16%), 70% patient satisfied with available water and other amenities in, around the hospital and 77% felt that the space in OPDs was crowded. All the patient whom examination required reported that the privacy has been maintain. As many as 92% wish to return every time for the treatment from our hospital. General perception regarding the IPD services shows that more than 95% patients were satisfied with various services like quality of medical care, nursing care, diagnostic and referral service, admission process, discharge process and physician services. As far as the staying is concerned at people ranked lowest to the availability of drinking water and cleanliness of toilet and bathroom. **Conclusion**: The findings of the present study can be utilized to improve the services.

Keywords: Patient satisfaction, Public health facilities, Quality of care

Introduction:

Satisfaction can defined as the extent of an individual's experience compared with his or herexpectations. Patients' satisfaction is related to the extent to which general health care needs andcondition specific needs are met. Evaluating to what extent patients are satisfied with healthservices is clinically relevant, as satisfied patients are more likely to comply with treatment, takean active role in their own care, to continue using medical care services and stay within a healthprovider and maintain with a specific system. In addition, health professionals may benefit fromsatisfaction surveys that identify potential areas for serviceimprovement and health expenditure may be optimised through patient-guided planning andevaluation.[1] Mismatch between patient expectation and the service received is related todecreased satisfaction. Therefore, assessing patient perspectives gives them a voice, which canmake public health services more responsive to people's needs and expectations. [2]. PublicHospitals need more Patient Satisfaction Surveys at regular intervals, as the PSS subjective data supported with other objective data like hospital indicators would further help in improving quality of services in Public hospitals. [3]Patient satisfaction depends up on many factors such as: Quality of clinical services provided, availability of medicine, behaviour of doctors and other health staff, cost of services, hospital infrastructure, physical comfort, emotional support, and respect for patient preferences. [4]

This institute is one of the well-known multispecialty tertiary care Hospitals in South Gujarat since 1964. Backed with a vision to offer the best in patient care and equipped with

technologically advanced healthcare facilities, it is one of the upcoming names in the healthcare industry. A team of well-trained medical staff, non-medical staff and experienced clinical technicians work round-the-clock to offer various services that include X-ray ,Sonography , Blood Bank , Eye Bank , Ambulance Service , Fax Facility . A team of doctors on board, including specialists are equipped with the knowledge and expertise for handling various types of medical cases. Every day around 2500 OPD and 1200 IPD weekly patients receive medical care from the hospital. This study attempts to highlight patient satisfaction after their interaction with the system in different phase of services such as approach to the hospital, doctor, examination by doctor, information given about disease & medications, availability of services, waiting time, accommodation facilities and cost provided for services. The purpose of present study was to carry out evaluation of hospital services by getting feedback from outdoor and indoor patients attending New Civil Hospital, Surat.

Aims and Objectives:

1. To measure level of satisfaction among the patient attending Tertiary Care Center, South Gujarat.
2. To identify the obstacles in availing services.

Method:

Study setting: Tertiary Care Center, South Gujarat.

Study design: Cross- sectional observational study

Sample size: Total 402 OPD patients and 397 Indoor patients were included in this study. (Considering 50% patients dissatisfy with the services). To calculate sample size from different department, OPD and IDP data of March 2017 has been selected from Medical Record Section. Sampling population were selected from different department like Medicine, Surgery, OBS and gynaecology, Opthalmology, Orthopedics, ENT, Paediatrics, Pychiatry, Dentisty, TB chest and Skin VD.

Inclusion criteria:

OPD patients: Respondents from all the department have taken by proportion to their OPD load. (Sampling method- Population Proportion to size). Survey has been conducted for the period of 1 week (6 working days) from 24th April to 1st May 2017. Total 67 respondents per day have been selected randomly from all the Departments. Every 20th patient has been selected till the desired number of sample size per day was achieved. In case of first visit in institute, interview conducted at the time of exit from hospital. In case of follow up visit, interview has been conducted in OPD waiting area.

Indoor patients: Total 397 IPD patient got selected. All the participants admitted in different ward with minimum hospital stay more than 24 hrs have been taken till the desired number of sample size was achieved. On the day of discharge, after taking written consent the participants have been interviewed.

Written consent has been taken from all the selected respondents after explaining them regarding study.

Exclusion criteria: Respondents who has not given written consent.

Ranking: Ranking was given based on descending order of mean score of each facilities. This score was used for accommodation facilities.

Data collection:

Data have been collected by 17 intern doctors posted in PSM Department. They were given formal training on date 17th April 2017 and piloting in the same week. Patient satisfaction survey questioner has been designed for both indoor patients and outdoor patients. [5] Data have been collected on ODK collect v1.5.1 version using android smart phones and analysis done by SPSS.17.

Ethical issue: Written informed consent has obtained from selected respondents. No harm to study participants. All details have been maintained by the investigator in strict confidentiality and analysis would be anonymous. Report shall be submitted to medical superintendent and concerned authority.

Study Period: One and half Month (17th April to May 2017)

Figure 1:Study area

Results:

Total 799 patients were included in the study (402 OPD and 397 IPD patients). Out of them, 47% participants were males, rest 53% were females and 39% participants were males, rest 61% were females for OPD and IPD respectively. The mean age of the participants was 38 and 34 years for OPD and IPD respectively. The education level of the OPD participants was poor as most of them were either illiterate (19%) or primary passed (44%). Similarly, IPD participants also very poor in education as 57% and 21% were illiterate and primary education respectively. Majority of the patient were Gujarati Hindu followed by Hindi from UP, most of them doing household duties. Median income reported for OPD respondents was 9000 and for IPD 5000.

Table 1: General perception of the clients for the OPD services available at Tertiary Care Center

Sr.No	Variables (N)	Perception of the participants N (%)				
		Too long	**Appropriate**	**Medium**	**Too short**	
1.	**Waiting time** at case window (402)	67 (17)	241 (60)	80 (20)	14 (3)	-
Behaviour of staff						
		Completely satisfied	**Somewhat satisfied**	**Neutral**	**Somewhat dissatisfied**	**Completely dissatisfied**
2.	Nurse (347)	209 (60)	114 (33)	20 (6)	3 (1)	1
3.	Technical Staff (306)	164 (54)	114 (37)	23 (8)	5 (2)	-
4.	Pharmacist (369)	181 (49)	142 (38)	38 (10)	8 (2)	-
Cleanliness						
5.	Dispensary (391)	231 (59)	147 (38)	13 (3)	-	-
6.	Laboratory (294)	155 (53)	118 (40)	20 (7)	1 (0)	
7.	Injection Room (178)	90 (51)	78 (43)	10 (6)	-	-
8.	Dressing Room (161)	98 (61)	54 (34)	8 (5)	1 (1)	-
9.	Public utility (320)	78 (24)	138 (43)	53 (17)	39 (12)	12 (4)
10	Drinking-water facility (290)	105 (36)	133 (46)	33 (11)	19 (7)	
11	other Amenities (373)	164 (44)	160 (42)	36 (10)	11 (3)	2 (1)
Extent of crowding (402)						
		Over crowded	**Somewhat crowded**	**Neutral**	**Adequate space**	**Spacious**
1	**Overall**	43 (11)	264 (66)	56 (14)	37 (37)	2 (0)

Table 1 shows general perception of the respondents about the various services they are getting at this hospital. Sixty percent of them believed that the time to get services is appropriate and 17% said it was too long. Only 1 to 2% of the respondents dissatisfied with staff behaviour. Majority of them satisfied with the cleanliness OPD (60%) at the same time few dissatisfied with public utilities (16%). More than 70% patient satisfied with available water and other amenities in around the hospital. Majority felt that the space in OPDs was crowded (77%).

All the patient whom examination required reported that the privacy has been maintain to their satisfaction (100%).As many as 92%. wish to return every time for the treatment from our hospital.

There were various comments by Participants like "Laboratory staff talk rudely", "Behaviour of the staff and the doctor at Radiology completely unsatisfied", "Drugs are not available at store and PDU store" ,Dental: "materials not available always"

Perception of the clients for the **IPD** services available at NCHS

Patients were admitted to the different departments for various purpose like majority (40.3%) admitted for major illness and 16 % for minor illness, 9.8% for operation, 1.3% for procedure and 30% for labour.

Table 2: General perception of the clients for the IPD services (N= 397)

Sr. No	Variables (N)	Perception of the respondents N				
		Completely satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Completely dissatisfied
1.	Overall rating for services	295 (74.3)	79 (19.9)	15 (3.8)	7 (1.8)	1 (0.3)
2.	Waiting time	307 (77.3)	56 (14.1)	19 (4.8)	9 (2.3)	6 (1.5)
3.	Level of care	298 (75.1)	82 (20.7)	11 (2.8)	5 (1.3)	1 (0.3)
4.	Emergency services	43 (70.5)	13 (21.3)	1 (1.6)	2 (3.3)	2 (3.3)
5.	Medicine you receiving is just Perfect	303 (76.3)	82 (20.7)	6 (1.5)	6 (1.5)	-
6.	Easy access to the medical specialist that you need	266 (78.7)	61 (18)	5 (1.5)	3 (0.9)	3 (0.9)
7.	Easy access to the medical specialist that you need	266 (78.7)	61 (18)	5 (1.5)	3 (0.9)	3 (0.9)
8.	Overall rating of the nursing care	324 (81.6)	62 (15.6)	8 (2.0)	1 (0.3)	2 (0.5)
9.	Overall rating of diag-nostic services (240)	193 (80.4)	43 (17.9)	3 (1.3)	1 (0.4)	-
10.	Overall rating of the Pharmacy (189)	148 (78)	37 (20)	2	1	1
11.	Overall rating of the admission process(396)	301 (76)	87 (22)	6 (1.5)	2 (0.5)	-
12.	Overall rating of the Discharge process (388)	299 (77.1)	72 (18.6)	14 (3.6)	3 (0.8)	-
13.	Overall rating of the nutrition services	244 (70.5)	55 (15.9)	24 (6.9)	12 (3.5)	11 (3.2)

Table 2 General perception regarding the availed services at NCHS shows that more than 90% patients were satisfied with overall service, very few 2% of the participants not satisfied with the services and they mainly score negative. As far as the emergency services at NCHS are concerned around 7% people gave negative feedback. As far as the quality care is concerned more than 95% respondents were satisfied with the current standards. However, 6% of them believed it was not up to the mark. They also commented about the availability of the specialist lacking in some department (2%). More than 95% respondents satisfied with the nursing care and only as few as 5% to as high as 25% were not satisfied with the subdomains which includes responsiveness to needs (25% in psychiatry), waiting time when called (25% in psychiatry) etc. Regarding food provided to patient, 10% of the respondents did not like the quality of food they received at NCHS. Satisfaction with the referral and diagnostic services were good (>95%) except radiology dept. Drug availability which needs to be taken care of. Overall more than 95 percent respondents satisfied with the admission process. Majority satisfied with the discharge process (98%) and some have commented that they were not properly given aftercare instruction.

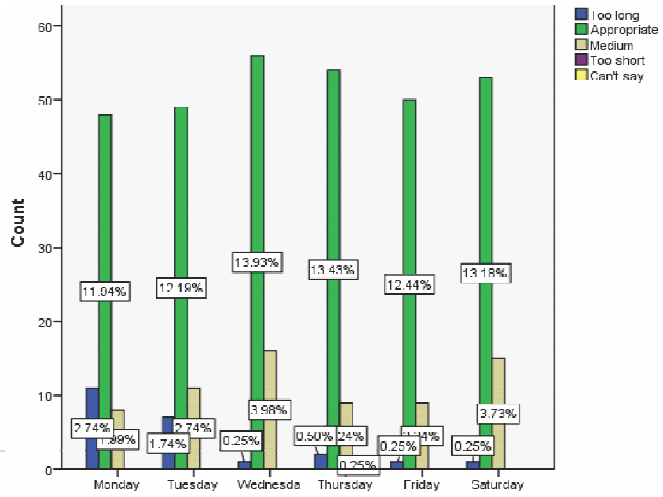
Table 3: Perception of the clients for the physician services available at Tertiary Care Center

Sr. No	Variable	Completely satisfied	Somewhat satisfied	Neutral	Somewhat dissatisfied	Completely dissatisfied
1.	Overall rating	319 (80.4)	67 (16.9)	5 (1.3)	5 (1.3)	1 (0.3)
2.	Courtesy, respect, friendliness and kindness	313 (79)	53 (13.4)	22 (5.6)	6 (1.5)	2 (0.5)
3.	Thoroughness of examinations	326 (82.3)	54 (13.6)	11 (2.8)	1 (0.3)	4 (1)
4.	Doctor act business like and impersonal towards me	326 (83)	55 (14)	9 (2.3)	1 (0.3)	2 (0.5)
5.	Those who provide you medical care hurry too much when they treat you	332 (84.5)	43 (10.9)	15 (3.8)	3 (0.8)	0 (0)
6.	Physician responsive-ness to Questions	306 (77.1)	64 (16.1)	18 (4.5)	7 (1.8)	2 (0.5)
7.	Explanation of tests procedures and treatments	287 (72.3)	52 (13.1)	45 (11.3)	11 (2.8)	2 (0.5)
8.	Sometimes doctors use medical term without explaining (391)	274 (70.1)	55 (14.1)	51 (13)	8 (2)	3 (0.8)
9.	Aftercare instructions	284 (73.2)	77 (19.8)	14 (3.6)	10 (2.6)	3 (0.8)

Table 4: Ranking of the overall staying as per score given by client

Rank	Variable	N	Mean
Accommodations facility overall rating		**397**	**4.78**
Ranking of different facilities			
1.	Ease of access to the facility	397	4.76
2.	Equipments	393	4.74
3.	Safety	397	4.71
4.	Comfort	397	4.64
5.	Privacy	396	4.58
6.	Cleanliness	397	4.56
7.	Quietness	397	4.54
8.	Attractiveness	397	4.53
9.	Temperature	397	4.52
10.	Toilet	397	4.42
11.	Bathroom	397	4.40
12.	Drinking water	391	4.35

Figure 2: Day of the week and the perception regarding getting the services



From **figure 2**, we can see that majority of patient believe that time for getting the service is appropriate. In initial day of week, more number of patients believes that time for getting the service is too long compare to other days.

More than 97% clients satisfied with physician services like examinations, behaviour, communication with the patient(Table 3).

As far as the staying is concerned at NCHS, people ranked lowest to the availability of drinking water and cleanliness of toilet and bathroom**(Table 4).**

Comments from Respondents:

Emergency Department: Doctor in hurry, Patient was not explained properly and was not admitted on time.

Physician service: Hurry too much & early discharge, Less attention to aftercare.

Nursing: Should attend patient when call sister.

Radiology: Had to send relative 3 times to get x ray plate, Long waiting in radiology dept, MRI should be available free of cost in hospital, Sonography takes time even if referral is urgent, Too much waiting time at USG.

Laboratory: Too often pricking for blood sample collection.

Pharmacy/Drug store: Drugs are not available, Waiting time too long

Accommodations: Bathrooms are not properly clean, Dirty bathroom & toilet sometime, Drinking water facility should be there on each floor, Drinking

water source quite far, Have to go to ground floor to take drinking water, Running water is not available in washrooms, valuables were stolen from the ward, drinking water should be available on the floor

General Comments: Difficulty in accessing some facilities due to lack of education in parents of patient, Drinking water should be provided to every floor, Number of lifts should be increased.

Discussion:

Patient satisfaction is considered one of the important quality indicators at the health care institutes. Satisfaction is achieved when the patients' perception of the quality of care and services that they receive in healthcare setting has been positive, satisfying, and meets their expectations.

In present study, 60% clients believe that waiting time at case window is appropriate whereas in Patavegar et al study [6] and Kumari et al study [7] less than 50% clients give similar opinion. Difference within patients perception is depend on various factors like location of institute, timing of services, facilities at services, infrastructure of institutes. In present study almost all patients (98%) were satisfied with behavior of staff compare to Arsad et al study [8] (90%) and Kumari et al study[7] (73%).

In studyof Arsad et al [8] and Kumari et al [7] more than 60% patients were satisfied with cleanliness of OPD. In present study 70% patients were satisfied with basic amenities which is more compare to other study. We have to focus that remaining 30 to 40% patients were not satisfied with cleanliness and basic amenities. During planning strategy, we have to focused regarding this. In study of Arsad et al[8], Kumari et al[7] and present study found that majority of people believe that OPD is overcrowding and large factor behind that is lack of human recourses.

Schoenfelder et al revealed 10 determinants of global patient satisfaction for indoor patients. The most influential determinants were outcome of treatment (OR 3.70) and kindness of the hospital's nurses (OR 2.78) and physicians (OR 1.96). Regarding the performance of service component, poor accommodation and quality of food resulted in decreasing global patient satisfaction. Both organization of admission and discharge were associated with global patient satisfaction[9]. Satisfaction level of patients is a subjective. It depend on many factors. In present study, Majority of patients (>90%) were satisfied with OPD services, IPD services, Physician services and accommodation facilities. Some patients were give comments regarding various facilities. From that comments we can identified obstacles in availing services like lack of human resource, patients overload, not availability of drinking water, uninterrupted supply of drugs and dental materials, more waiting time for USG, issue regarding behaviour of staff with patients ect.

Conclusions :

General perception of the clients for the OPD services were 98% respondents satisfied with staff behavior, 70% patient satisfied with available water and other amenities in, around the hospital, 60% believed that the time to get services is appropriate, , 60% satisfied with the cleanliness OPD at the same time few dissatisfied with public utilities (16%), and 77% felt that the space in OPDs was crowded.All the patient whom examination required reported that the privacy has been maintain. As many as 92% wish to return every time for the treatment from our hospital.General perception regarding the IPD services shows that more than 95% patients were satisfied with various services like quality of medical care, nursing care, diagnostic and referral service, admission process, discharge process and physician services. As far as the staying is concerned at people ranked lowest to the availability of drinking water and cleanliness of toilet and bathroom.Obstacles in availing services are lack of human resource, patients overload, not availability of basic amenities, lake of materials, more waiting time for radiology facilities and issue regarding behaviour of staff. The findings of the present study can be utilized to improve the services.

Recommendations:

The study findings suggest that following measures may be taken by the policy makers and hospital administrators to increase the patient satisfaction.

- Efforts should be made to reduce the waiting time and patient load so that doctors and other staff can give more attention and time to the respondents;
- Efforts are also needed to strengthen infrastructure and human resources (uninterrupted supply of the drugs and dental materials, availibity of the drinking water at each wards and cleaning and maintenance of the public utility).
- Certain improvements are also needed in the waiting area by making it informative and comfortable and improvement of the skills of doctor-patient communication.
- The findings of the present study can be utilized to improve the services at Tertiary Care Center, resulting in the more satisfaction of respondents availing such public health facilities.

Limitations:

- Patient satisfaction is considered by some to be of dubious benefit in facilitating the process of clinical care, as respondents have no specific clinical expertise and are -perhaps- readily influenced by non- medical factors.
- High levels of ceiling effect with high levels of satisfaction due to respondents "fear of giving negative evaluations".
- Perceptions about need have an impact on satisfaction – the more you need the less satisfied you are. However, in the present study no need assessment has been done.

Declaration :

Funding: Nil

Conflict of Interest: Nil

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Citation: Several research studies have revealed gap between facts and beliefs of adolescent girls and showed that there is low level of awareness about menstruation among girls when they first experience it.[4]

Journals: Mehta MN, Mehta NJ. Serum lipids and ABO Blood group in cord blood of neonates. Indian J Pediatr.1984; 51:39-43.

Book: Smith GDL. Chronic ear disease. Edinburgh: Churchill Livingstone; 1980.

*Chapter in the Book:*Malhotra KC. Medicogenetics. problems of Indian tribes. In: Verma IC, editor. Medical genetics in India.vol. 2. Pondicherry: AuromaEntrprises; 1978. p. 51-55.

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- શરદી, ખાંસી અને ગળામાં દુ:ખાવો, ભારે તાવ.
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- હસ્તધૂનન ને બદલે "નમસ્કાર" ની મુદ્રાથી અભિવાદન કરો.
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