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Malnourished Millions – Are We Doing Enough?

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Introduction:

Nutrition word is derived from the Latin verb 'Nutrire" which means to nourish.[1] Indian equivalent to nutrition is POSHAN. The development of a fertilized Ova cell into a full-grown human body consisting of trillions of cells is one of the finest miracles of nature on display and it is primarily dependent on adequate and appropriate nutrition.

Malnutrition in literal terms means adjusted/ bad nutrition. Any deviation from adequate and appropriate nutrition can be termed malnutrition. It is important to understand that nutrition must be adequate as well as appropriate for achieving optimal growth. Classically malnutrition word has been used for under nutrition, signifying a lack of adequate nutrition. Over nutrition (overweight & Obesity) has also been defined as malnutrition. However, in the present paper, the authors will be using malnutrition terminology in reference to under nutrition.

The entire article is commenced by briefly describing the health impact of malnutrition followed by the current situation of nutrition in India and the potential impact of the COVID-19 pandemic on nutritional status. In the next section, the authors have highlighted current programmatic interventions for malnutrition management. In the final section, a detailed discussion of various programmatic innovations and modifications is proposed for effective malnutrition management.

Health impact of malnutrition on children:

Malnutrition in the early years of childhood is highly detrimental to the overall growth potential of a child. Following is a brief description of the various health impacts of malnutrition.

- Children with Severe Acute Malnutrition (SAM) have very high rates of morbidity and mortality in the early years of life compared to normal weight child
- Low immunity leads to recurrent infections such as common cold, fever, diarrhoea
- Poor height and weight gain appropriate for the age.
- A poor mucosal barrier in the nose and mouth makes a child prone to infections.[2]
- Suboptimal vaccination generated immunity compared to a normal child.[2]
- Delayed or poor cognitive development: various studies have highlighted that malnourished children performed consistently poor in various cognitive tasks (Motor, language and cognitive components) compared to their peers having normal nutrition status.[3]

Malnourished children are trapped vicious cycle of malnutrition and infection, leading to long-term health, social, educational, and economic

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Table 1 : Malnutrition rates in India from the year 2005 to 2020

Indicator	NFHS- 3 (2005-06)	NFHS-4 (2015-16)	NFHS-5 (2019-20)	% Change from NFHS 3 to 5
Under weight	42.5	35.8	32.1	24.5%
Stunting	48.0	38.4	35.5	26.0%
Wasting	19.8	21.0	19.3	2.5%
Severe Wasting	6.4	7.5	7.7	– 20%

Further more, these rates do not represent the entire picture. There is a huge inter-statevariation in malnutrition rates (Table 2). While many states have improved in nutrition indicators, few states continue to demonstrate very high rates of malnutrition.

Table 2 : Inter-state variationsin nutrition across India (NFHS - 5)

Indicator	Best performing states	Indicator
Under weight	Mizoram (12.7%) Sikkim (13.1%)	Bihar (41%) Gujarat (39.7%)
Severe Underweight	Manipur (3.3%) Mizoram (3.3%)	Gujarat (14.5%) Jharkhand (14.3%)
Stunting	Sikkim (22.3%) Kerala (23.4%)	Meghalaya (46.5%) Bihar (42.9%)
Wasting	Mizoram (9.8%) Manipur (9.9%)	Maharashtra (25.6%) Gujarat (25.1%)
Severe Wasting	Manipur (3.4%) Punjab (3.6%)	Maharashtra (10.9%) Gujarat (10.6%)

Impact of COVID-19 on malnutrition:

A recent survey on the impact of the COVID Pandemic on nutrition is not available in India. However, the latest report by UNICEF has predicted a 20% rise in severe wasting cases by the year 2022. The COVID pandemic has affected nutrition care in multiple ways ranging from the lesser availability of food, economic slowdown affecting the financial situations of families, the financial situation of various countries for nutrition sector investment, reduced screening for SAM, increased costs of RUTFetc.[7]

Food security is another area where the COVID pandemic had a distressing impact onIndia. Although there is a paucity of evidence on food security, there are few proxy indicators which can help decipher food security in India. PMGKAY (Pradhan Mantri Garib Kalyan Ann Yojana) Launched in April 2020, the scheme is recently extended in phase VII for the period of October – December 2022. This scheme ensures the provision of five kg of grains to the croresof beneficiaries for the last 25 months. [8]The continuation of this scheme can be attributed to the effect of COVID-19 on food security.

Current interventions for malnutrition management in India:

Various programs for malnutrition management are in place for decades. These interventions are primarily implemented by either the health department or Integrated Child Development Services (ICDS) program. These programs have their challenges and implementation hurdles in ensuring adequate care for children.

- **Facility-based and community-based management of Acute Malnutrition:** Faclility Based Management of SAM (FBSAM) program is the flagship program run by the health department to provide treatment to SAM children with medical complications. The guidelines on SAM management recommend SAM children without medical complications be managed through the community-based program. However, details for the same are very minimal in the guidelines.[9]
- **ICDS Supplementary Nutrition Program:** Women and Child Development (WCD) ministry run one of the largest nutrition supplement program through ICDS (Integrated Child Development Services). It provides take-home ration for children aged 6-36 months and hot cooked meals and snacks to children 3-6 years. It also provides additional take-home ration for SAM children as well.[10]
- **Preventing malnutrition and regular nutrition status assessment:** various interventions aimed at building the capacity of pregnant women to ensure prevention of malnutrition in her child. This includes the provision of take-home ration to pregnant women, teaching benefits of early and exclusive breast feeding, appropriate IYCF (Infant and Young Child Feeding) practices, immunization, care for Respiratory infections and diarrhoea etc. Regular nutrition status assessment is done by Anganwadi workers. Rashtriya Bal Swasthya Karyakram (RBSK) also periodically checks anthropometric measurements for children.
- **Anemia Mukt Bharat and Deworming program:**

  Anemia Mukt Bharat focuses on multiple aspects such as Iron Folic Acid supplementation, dietary diversity, biannual deworming using Albendazole and awareness generation using a life cycle approach. However, its implementation needs larger improvement.[11]
- **Capacity building of frontline workers:** various programs are designed for the capacity building of frontline workers to early identify malnutrition and provide community-based care and make early referrals for severe cases.
- **Innovative public-private partnerships:** various academic institutions, industries and NGOs are also working for various community and facility-based interventions for malnutrition Bal Poshan Yojana is one such intervention to engage private sector paediatricians and NGOs for the malnutrition management program.[12]

  At this point, it is noteworthy that the scale of malnutrition is such humongous that the above-mentioned interventions are not able to bring the desired result. Hence, it becomes important to relook at the approach of all stakeholders with a fresh perspective and devise newer policies and strategies which may help malnourished millions across the country. The following section highlights ten recommendations for policy-level changes and implementation strategies aimed at reducing current levels of malnutrition.

Recommendations:

1. **Updating facility-based malnutrition treatment guidelines:**

   Current malnutrition treatment guidelines by Ministry of Health and Family Welfare (MOHFW), Government of India are at least a decade old. Operational guidelines on Facility based management of children with Severe Acute Malnutrition were released in 2011. [13] These guidelines need comprehensive review and revision to include newer interventions for malnutrition treatment. A systemic review and relook into screening protocols, diagnostic criteria, treatment protocol and linking with community-based follow-up is essential and can help improve outcomes in children with malnutrition.

2. **Community-level management of acute malnutrition:**

   Out of all malnourished children, very few will be suffering from Severe Acute Malnutrition with medical complications. Most of the malnourished children will be either SAM children without medical complications or having Moderate Acute Malnutrition (MAM). These children do not

require facility-based care and can be managed at the community level.

However, there is no clear direction for the implementation of the CMAM (Community Management of Acute Malnutrition) program. Few states have taken initiative in this direction and can help in developing updated national CMAM program guidelines. This will be the single most important intervention for malnutrition management in the present context.

3. **Involving private sector paediatricians/NGOs in malnutrition programs:**

Private sector practitioners and Civil Society Organizations play a crucial role in scaling up malnutrition interventions. Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) has identified this opportunity and has included the management of '**acute severe malnutrition** in the National Health Benefits Package. [14]However, just the inclusion of SAM in the pediatric medical management package will not be useful. Inviting the private sector for discussion and encouraging them to participate will be essential for the success of the program.

Furthermore, the Standard Treatment Workflow (STW) prepared under PMJAY requires immediate updating. STW for SAM mentions a treatment duration of 3-5 days which is highly insufficient for the treatment of SAM children. [15]STW updates by the appropriate authority will tremendously help in improving the quality and coverage of SAM Management by the private sector/NGOs.

4. **Leveraging Corporate Social Responsibility (CSR) funds for malnutrition:**

CSR funds in India are increasing with the industrial growth in the country and can be mobilized for nutrition programs. Currently, all CSR agencies are trying out various interventions as per their technical partner capacity with varying degrees of success. Many of these interventions are not evidence-based and do not provide desired results. There is a strong need for developing evidence-based **interventions for malnutrition management in** collaboration with the industry**.** Sucha document can identify scientifically accurate &effective interventions with measurable outcomes. It will also provide easy reference for CSR agencies to implement successful treatment models and reach out to the most remote areas of the country for providing care.

5. **Debunking the 15% weight gain myth:**

Time and again, World Health Organization and other agencies have highlighted that a 15% gain from the baseline weight should not be used as a measure of program success. Nonetheless, this indicator is being widely used because it is mentioned in National Guidelines. It is high time that national guidelines are revised as per new updates. WHO update on the management of SAM in infants and children provides a scientific recommendation in this regard. Recommendation 1.5d mentions 'percentage weight gain should not be used as discharge criterion'.There are sets of other more sensitive indicators available for measuring the growth of children and the performance of the program.Recommendation 1.4 mentions 'The decision to transfer children from inpatient to outpatient care should be determined by their clinical condition and not on the basis of specific anthropometric outcomes such as a specific mid-upper arm circumference or weight-for-height/length'.These indicators can be derived through a consultative process at the national or state level and should replace 15% weight gain as an indicator at the earliest.[16]

6. **Ayurvedic interventions for malnutrition management:**

Ayurved is one of the oldest streams of medicine and provides a very important treatment regime for many illnesses. Various Ayurvedic interventions have been tried out to treat malnutrition across India. Ashwagandha is one such potent medicine tested in different preparations (kshirpak, ghrit, modaketc.) with good efficacy in malnutrition management. Similarly, Abhyanga (full body oil massage) is also found to be helpful in weight gain.[17-21]There is a need to do systemic research on promising

ayurvedicinterventions for malnutrition management. Ayurvedic interventions for malnutrition management will have two advantages over current management. First, there isa huge number of ayurvedic practitioners who can be involved in the management of malnutrition. The second benefit will be the acceptability of the treatment. Ayurvedic interventions are well accepted in many communities across the country and can help improve treatment compliance rates.

7. Demystifying F-75/F-100 & EDNS (Energy Dense Nutritional Supplement):

'When diet is wrong, medicine is of no use; when the diet is correct, medicine is of no need' – an ancient ayurvedic proverb aptly fits while discussing F-75/F-100 and EDNS, a mainstay of malnutrition management. There is a lot of mysticism around F75 & F-100 as if they are a magic bullet to cure malnutrition. However, they are simple diet preparation made of milk, sugar, oil, puffed rice and water. They are called therapeutic nutrition.

There is a huge potential for scaling up these interventions for the management of moderate malnutrition and facility discharge of SAM children. There are cooperative milk federations producing millions of liters of milk products for consumption in India and abroad. Innovations in F-75/F-100 preparations with the support of milk federations such as ready-to-drink tetra packs or similar ready-to-consume products can help tremendously in scale-up.

Similar issues are with the use of EDNS (Energy Dense Nutrition Supplement). EDNS are proven malnutrition treatment interventions, used across the world with enough scientific evidence. Cooperative milk federations do have the capacity to produce EDNS domestically at a scale. However, these supplements are not used in India on large scale. National guidelines can consider including these products based on their scientific merit in the treatment protocols.

8. Community awareness about appropriate nutrition and food sources:

While it is important to treat malnourished children, it is equally important to ensure that normal children continue to gain height and weight at desired rates. There can be no program for managing nutrition but to increase awareness about appropriate nutrition at the community level. This can be achieved through various modes of community engagement and by providing solutions feasible solutions for implementation.

9. Adolescent and Maternal Nutrition:

Adolescent and maternal nutrition are often neglected areas having a very strong impact on child malnutrition. As per WHO Growth Standards for children any male child with a birth weight $\leq$ 2500 grams and a girl child with a birth weight $\leq$ 2400 grams is classified as moderate underweight at birth.[22, 23] Appropriate strategies for maternal nutrition during pregnancy can drastically cut down malnutrition rates. A detailed study of various maternal and adolescent malnutrition interventions is required to devise a strategy appropriate for the Indian context.

10. Increasing awareness about scientific interventions for malnutrition:

'Something has to be done, this is something, that's why it must be done'. This quote applies perfectly to various interventions for malnutrition. A single pack of nutritious biscuits, protien powder packets or one time fruit baskets may be a good gesture but very unlikely to bring a child out of severe malnutrition. Furthermore, it consumes the limited resources available for nutrition. Awareness must be created at every level regarding most scientific interventions and their duration for bringing a child out of malnutrition.

Malnutrition is a very complex issue requiring efforts from every stakeholder. Regular systemic screening and management protocols are required for timely interventions. At the same time, capacity building of frontline workers is also important to ensure quality screening and treatment. There need to be nutrition-specific plans for every department and convergent health & nutrition planning. Finally, nutrition needs to be addressed through a life cycle

approach for better results instead of focusing on the first five years of life.

Conclusion:

Malnutrition in India continues to be one of the major public health problems. The first five years of life is a small window of opportunity available for the development of the brain of a child. A malnourished child is likely to live with a lifelong cognitive disadvantage. Hence, malnutrition at a young age must be treated appropriately. Interventions for malnutrition management are far beyond the scope and reach of the Health or WCD Department and must involve other stakeholders. A comprehensive policy involving government, NGOs, private providers, CSR agencies and academic institutions is a must in the present-day environment for effectively tackling malnutrition. With comprehensive and sincere efforts, it can be ensured thatevery child serving the Nation is healthy. "Healthy Child Healthy nation"

Declaration:

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Evaluation of the Integrated Child Development Services Scheme in a Hilly Tribal District of Manipur: A Cross-Sectional Study

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Abstract:

Introduction: The Integrated Child Development Services (ICDS) Scheme, the largest program for promotion of maternal and child health nutrition in India, is operational for more than four decades. **Objective:** To evaluate Integrated Child Development Services Scheme in Kangpokpi District of Manipur in terms of input, process and outcome indicators. **Method:** A community-based cross-sectional study was conducted at a tribal hilly district of Kangpokpi in Manipur. The study included ICDS staff and beneficiaries of 35 randomly selected Anganwadi Centres (AWCs). Data related to ICDS was collected by using interview schedules and checklists. The descriptive data were expressed in terms of mean, standard deviation and percentage. Association between important background characteristics and Anganwadi centre attendance was analysed using chi-square test. Ethical clearance was obtained from the institutional Ethic Committee of JNIMS, Imphal before conducting the study (study period: May 2018 to April 2021) **Results:** Input indicators: The study found that 86% anganwadi centres were run in anganwadi worker's own house. Two-thirds of the anganwadi workers (65.7%) were found to have separate toilet and 22.9% had separate kitchen. Process indicators: Even though the proportions of beneficiaries accessing services from anganwadi centres were high, the number of days Supplementary Nutrition (SN) was provided in a month was comparatively low (mean: 2.97 and SD: 0.618 for under-6 children and mean: 1 and SD: 0.000 days for adolescent girls, pregnant women and lactating mother in a month) due to frequent interruption of supplementary nutrition supply. There was no supplementary nutrition stock in 74.3% of the anganwadi centres on the day of visit. Outcome indicators: Regarding the nutritional status 90% of Under-6 children were found to be normal, 9% underweight and 0.6% severely underweight. **Conclusion:** The Integrated Child Development Services Programme in the study area was found to have several short-comings both in terms of inputs and process. There were not only inadequate facilities and infrastructure, but the anganwadi centres also lacked essential equipment like weighing machines and medicine kits, rendering a vital activity like growth monitoring to be almost completely absent. Supervisory visits were far below satisfactory.

Key words: Anganwadi Center, Evaluation, Integrated Child Development Services, Tribal district.

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Introduction:

The Integrated Child Development Services (ICDS) Scheme, the largest program for promotion of maternal and child health nutrition in India, was launched on 2nd October 1975 in pursuance of the National Policy for Children.[1,2] On the same day, it was introduced in the state of Manipur with a pilot project at Ukhrul Tribal Development (TD) Block. As on march 2020, there were 43 functional ICDS projects in Manipur with 11,510 Anganwadi Centers (AWCs).[3, 4] At the Block level, the Child Development Project Officer (CDPO) is the overall in-charge of implementing the program. Each block has, on an average 100 anganwadi centres. To facilitate supervision, the blocks are further divided into 4-5 circles depending upon the number of anganwadi centres. Each circle has a Supervisor who monitors 20-25 anganwadi centres. At the village level, the package of health, nutrition and educational services are provided at the anganwadi centres which are the focal points for integrated child development service delivery that normally operates daily for 4 ½ hours except on Sundays and holidays.[5]

Yet, even after more than four decades of implementation, the success of ICDS program in tackling maternal and childhood problems still remain a matter of concern.[6] The need for revitalization of ICDS had been recommended for bringing better maternal and child health (MCH) especially in rural areas.[7] Various studies in other parts of the country had attempted evaluating its impact for nutritional status and child morbidity, but the input, process and output status of AWCs and also the service constraints were not assessed much.[8]

Again as per the latest Rapid Survey on Children: Manipur Fact Sheet, Report 2013-2014, there seems to be a big gap between the awareness level of ICDS services and reported coverage of the services.[9] Also, in spite of having a well-structured ICDS system in the state of Manipur, the health and nutritional status of women and children as reflected in the National Family Health Survey-5 (NFHS-5) report were still far below the satisfactory level.[10] It was worse in the tribal hilly districts.

Hence, it was felt important to evaluate the ICDS scheme not only in terms of the program output, but also in terms of the input and process of the program in the hilly districts inhabited by tribal population. This might help in finding out program areas which need impetus so that the desired goals of the program can be achieved. The study further aimed to determine association between important background characteristics and service utilization.

Method:

A community-based cross-sectional study was conducted in the hilly tribal District of Kangpokpi in Manipur during the period May 2018-April 2021. The District had three Tribal Development (TD) Blocks viz. Kangpokpi, Saitu Gamphajol and Saikul.[11] Hence, there were three ICDS blocks in the district. Each ICDS block was headed by one Child Development Project Officer (CDPO).

The study population consisted of the service providers viz. the Child Development Project Officer (CDPO), the Sector Supervisors, and the Anganwadi workers (AWWs). For data triangulation, the beneficiaries of ICDS project viz. the Mothers/ Caretakers of Children aged less than 6 years, Pregnant women (PW), Lactating mothers (LM) and Adolescent girls were also included. Those beneficiaries who were not willing to participate and those who could not be contacted on the day of visit were excluded.

Out of the existing three CDPOs, one was randomly selected. All the supervisors working under her project area were included. Further five AWWs working under each of these supervisors were selected by using simple random sampling method. Also, all the PWs and LMs from the selected AWC villages were included as study participants. Lastly, five children aged 6 months to 6 years and five adolescent girls (AGs) residing in each of the selected AWC villages were selected by convenience method. As for the children below 6 years their mothers/care takers were the respondents.

The Operational definitions used were [12,13]

a. Input indicators: No. of projects, sectors, AWCs, manpower position (sanctioned, filled, vacant), etc.
b. Process indicators: Regularity of receipt and supply of Supplementary Nutrition (SN)/Kits to AWCs, No. of beneficiaries enrolled versus

accessing services, average number of days open in a month, average number of days SN was provided

c. Outcome indicators: proportion of beneficiaries getting services like Non-Formal Primary School Education (NFPSE), SN, Iron and Folic Acid (IFA), deworming, proportion of undernourished children, etc.

Separate and pre-tested interview schedules translated into the local language were used to collect information at different levels (DPO, CDPO, Supervisors, AWWs and program beneficiaries). Checklists were used for physical verification of the AWCs and its infrastructures. Weight measurement for children (aged < 6 years) was done by using WHO certified weighing machine (Tanita HD-351) scales.

Collected data were entered in MS-excel and later were transported to IBM SPSS Version 22 (Customer ID: 224116) for analysis. Descriptive data was expressed in terms of mean, standard deviation and percentage. Chi-square test was used for checking association between service utilization and important socio-demographic variables. p value of less than 0.05 was considered statistically significant.

Ethical clearance for the study was obtained from the institutional Ethic Committee of JNIMS, Imphal before conducting the study. Informed consent was taken from the study subjects. For adolescent girls aged less than 18 years, verbal assent along with informed consent from their guardian were taken. Confidentiality of information was maintained.

Results:

For Evaluation of ICDS, Saitu Gamphazol Tribal Development Block was selected as the study-place. This Block had 08 ICDS sectors. All the selected service providers (1 CDPO, 07 Supervisors and 35 AWWs) and beneficiaries (60 PWs, 100 LMs, 178 AGs and 176 Under-6 children) participated in the study. There was no refusal.

Input Indicators:

The lone CDPO of the ICDS Project was a qualified one and had undergone induction training at the time of joining but no further refresher training was taken. Six Sector Supervisors were in place taking care of the 08 Sectors. Out of them, four (66.7%) had undergone both induction and refresher trainings while the remaining two (33.3%) had undergone only induction training. Out of the total 35 respondent AWWs, 32 (91.4%) were class-X passed and majority (31; 88.6%) had induction training but only 21 of them (60%) had received refresher training.

Regarding ownership of the AWC building, majority (30; 86%) were run at AWW's own houses and less than one-tenth (3; 8.6%) were run in Government buildings and two (5.7%) were run in government school buildings.

Out of 35 anganwadi centres included in the study 27 (77.1%) anganwadi centres didn't have separate kitchen and more than one-third (12; 34.3%) did not have separate toilet. It was also found that tapped water supply facility was available only in three-fourths (27; 77.1%) of the AWCs. Regarding logistic supply, all the centers had crockery items and at least some of the NFPSE materials. WHO growth chart was available in 19 (54.3%) AWCs, Weighing Machine in nine (25.7%) and tricolor tape in three (8.6%) AWCs. However none of the centers had basic Medicine kits. Stock of SN was available only in one-fourth (9; 25.7%) of the centers.

Process Indicators:

Table 1: Process indicators for evaluation of ICDS

Indicators	Number	Percentage
Number of hours AWCs openedin a day		
1 hour	8	22.9
2 hours	22	62.9
3 hours	5	14.3
Number of days SN provided in a month		
< 7 days	6	17.1
7- 14 days	22	62.9
> 14 days	7	20.0
Number of months SN supply interrupted		
2 months	10	28.6
3 months	20	57.1
4 months	5	14.3

Acceptability of SN by beneficiaries		
Very much	27	77.2
By some	4	11.4
Only by a few	4	4.0
Number of VHSND meetings conducted at AWCs during past one year		
Once	10	28.6
Twice	9	25.7
Thrice	1	2.9
No meeting	15	42.9
Supervisory visit to AWCs during the past one year		
By CDPO		
No visit	28	80.0
One time	7	20.0
By supervisors		
Monthly	2	5.7
Bimonthly	3	8.6
Quarterly	26	74.3
Half yearly	2	5.7
Once in a year	2	5.7
Weight monitoring of under-6 children (n=176)		
Weight not checked	160	91.0
Weight checked	16	9.0

Of the 35 selected AWCs, only five (14.3%) used to open it for three hours a day. Again only seven (20%) could provide SN for more than 14 days per month. The receipt of SN was found to be irregular in all the selected AWCs, some getting even an interruption of four months in between. But the quality of the SN was perceived to be acceptable in 27 (77.2%) AWCs. Slightly more than one-fourth of the AWCs (10; 28.6%) use to hold Village Health Sanitation and Nutrition meetings once in the past one year while another one-fourth (9; 25.7%) held it twice whereas no such meetings took place in majority of the AWCs (15; 42.9%).

Supervisory visits seemed to be inadequate. A majority (28; 80%) AWCs never got any visit by the CDPO in the last one year and 26 (74.3%) of the AWCs receiving Supervisory visits from the Sector Supervisor on quarterly basis.

Weight monitoring of Under-6 children as reported by the mothers/caretakers was found to be dismal (16; 9%). (Table 1)

Outcome indicators

Table 2: Distribution of beneficiaries getting various services from AWCs

Beneficiaries	Types of services				
	Supplementary Nutrition (%)	Primary School Education (%)	De-Worming (%)	Iron Folic Acid (%)	Growth Monitoring (%)
6 months-3 years children (n=66)	66 (100)	-	60 (90.9)	-	2 (3)
3-6 years children (n=110)	110 (100)	109 (99.1)	110 (100)	-	14 (12.7)
Adolescent girls (n=178)	177 (99.4)	6 (3.4)	92 (55.6)	-	-
PW (n=60)	59 (98.3)	-	-	7 (11.6)	-
LM (n= 100)	95 (95%)	-	-	-	-

Of all the services provided at AWCs, SN was the most commonly accessed service by the beneficiaries. The proportions of beneficiaries who accessed SN were under-6 children (100%), Adolescent Girls (99.4%), Pregnant Women (98.3%) and Lactating Mother (95%). Of the total 178 respondent Adolescent girls, 176 (99%) used to attend twice in a month on average and received SN. Almost all Pregnant Women respondents (58, 97%) were enrolled in the AWCs on twice monthly basis. But they used to get SN only once in a month. It was also seen that, of the total 100 Lactating Mother respondents almost all (98; 98%) were found to be enrolled at AWCs. They also used to receive SN once in a month.

Table 3 : Association between mother's socio-economic background and number of days Under- 6 children attended AWC (n=176)

Socio-economic factor	Number days Under-6 children attended AWC			p value
	< 7 Days (%)	7-14 Days (%)	>14 Days (%)	
Mothers' educational level				
Under matric	24 (28.6%)	43 (51.2%)	17 (20.2%)	0.005
Matriculated	10 (10.9%)	43 (51.2%)	17 (20.2%)	
Monthly family income (INR)				
<8000*	22(23.4%)	42 (44.7%)	30 (31.9%)	0.06
≥8000	12 (14.6%)	51 (62.2%)	19 (23.2%)	

*INR 8000 was the median family income

Non formal education was available to almost all the children aged 3-6 years (109; 99.1%). Again Deworming services were received by all Under-6 children and more than half (55.6%) of Adolescent Girls. Tablet Iron Folic Acid were received only by one-tenth of the Pregnant Women (7; 11.6%) whereas this facility was not made available to other types of beneficiaries. Growth monitoring of children was done only to 16 (9%) children. (Table 2)

A total of 16 (9%) and 1 (0.6%) of the Under-6 children were found to be underweight and severely underweight.

Children whose mother educational level are senior secondary and above used to attend AWCs more frequently compared to children of mothers educated below senior secondary school. This association was found to be statistically significant (P=0.005). However there was no significant association between the number of days under-6 children attended AWC and their family income (p value=0.06).

Discussion:

Integrated child development services scheme in which anganwadi centres are the focal point for delivery of services, has been considered as one of the largest and unique grass root early childhood development programme to address health, nutrition and development needs of children, pregnant women, nursing mothers and adolescent girls.

The present study shows that 86% AWCs were run in AWWs' own houses. This is in contrast to study findings made in other developed states of India. In Gujarat 82.1% AWCs were run in Government's own building[12] while in a study conducted in Odisha found that 72.2% AWCs were run in its own Government buildings.[14] This shows that the situation in this hilly tribal district of Manipur needs to be improved more.

In the present study 22.9% AWCs had separate kitchen which was much less than the finding in the study done by Joshi K et al (84%).[15] Two-thirds of AWCs (65.7%) were found to have separate toilet which is similar to the finding (64.6%) made by study conducted by Chudasama RK et al in Gujarat. [12]

We found that almost all the AWWs were matriculate and above by education.This is comparable with the finding made by Patil SB et al but was better than study finding made by Gotakar S et al in which 37.7% were under matriculate. [16,17]

In the present study 88.6% of the AWWs were found to have undergone induction training while 60% of them have received refresher trainings. This

finding is comparable with what other researchers have found in other parts of India. [18,19]

Growth charts and weighing machines were available in 54% and 25.7% of AWCs respectively and only 9% of the Under-6 children had their weights monitored. This finding is very dismal if compared to findings made from studies done in Gujarat, Uttarakhand, West Bengal and Punjab.[12,20-22]

The proportion of beneficiaries availing SN although not regularly given was almost100% among all types of beneficiaries. The scenario is comparable with earlier studies done in other states. [12]

The present study found that Village Health Sanitation and Nutrition Days were given low priority. Almost half of the AWCs had no VHSND conducted in the last one year. This is very less if compared to other study findings. [23]

To improve the functioning of the AWCs in this hilly tribal district, handholding the AWWs in the form of supervisory visits by the CDPO and Sector Supervisors is vital. Yet, it was found that, the CDPO had visited only one-fifth of the AWCs in the last one year. Supervisor visits were also on quarterly basis in three-fourths of the AWCs. This was worse than what was reported from a study done in Bihar where CDPO visits 40% of AWCs at least once during the last quarter and Sector Supervisors visit one-third of the AWCs every month. [24]

The study found that the number of under-6 children attending AWCs was more in children whose mothers education level were senior secondary school and above 52.3% (92, 176) compared to those children whose mothers educational level were below senior secondary school, 47.7% (84, 176).

Limitation:

Present study findings might be biased as the study is limited to only one block of a hilly tribal district and so may not be applicable to all the hilly tribal districts of Manipur. Further studies involving more districts and more blocks are needed to know more accurate information regarding ICDS scheme.

Conclusion and Recommendation :

The ICDS Programme in the study area was found to have several short-comings both in terms of inputs and process. Not only were the facilities and infrastructure inadequate, but the AWCs also lacked essential equipment like weighing machines and medicine kits, rendering a vital activity like growth monitoring to be almost completely absent. The performance of AWCs and maternal and child health services delivered by AWCs needed improvement. There were gaps in terms of manpower (2 supervisors and 19 posts of AWHs were lying vacant). The supply chain of SN needed to be made more regular so that there was no long-term interruption. Most of the time, availing SN may be the main reason why beneficiaries attend AWCs.

The poor status of PSE activities in AWCs, almost non-existence of health check-up of beneficiaries and necessary referral of sick children and not conducting any VHSNDs at the AWCs needed to be promptly addressed.

Growth monitoring and growth chart maintenance was very poor due to unavailability or no functioning of weighing machines, as a result nutritional status of the beneficiaries' children cannot be assess properly and report/register not updated in most AWCs. There is a need to make functioning weighing and growth chart available at all AWCs and regular update growth chart and growth monitoring register.

Handholding supervisory visits need to be more frequently made so that the system is revitalized in this hilly tribal district.

Declaration:

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Conflict of Interest: Nil

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The Lived-In Experience and Psychological Recount of Dog Bite Victims Visiting the Anti-Rabies Clinic in Kashmir: A Qualitative Study

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Abstract:

Introduction: There is a necessitated need for canvassing and prioritizing measures towards rabies elimination beyond existing statuesque post-exposure prophylaxis. Moreover, there is a need to characterize the psychological and intrusive experiences of dog-bite victims to portray a picture beyond the public health perspective. **Objective:** To get an expressive understanding of the psychological and lived-in experience of dog bite victims' to complement existing concepts. **Method:** The study was conducted at the anti-rabies clinic(ARC) of SMHS hospital which receives animal bite cases from the whole of Kashmir valley. Participants were selected by purposive sampling based on the inclusion criteria, and data saturation was reached with eleven participant interviews. One to one in-depth interviews were conducted with eleven (11) dog bite victims, using a preformed interview guide. Data analysis was performed using Colaizzi's phenomenological method to describe the individualistic experiences faced in peculiar conditions with familiar phenomena embedded in them. **Results:** Data analysis yielded three overarching themes and nine subthemes viz:- 1.Spiritual and emotional ineffectualness. (Suffering and affliction, Spiritual sulkiness, Emotional emergence) 2. Flashbacks of being hindered and defenseless. (Lack of focus in one's work, lacking the courage to protect, Being shaky) 3. Social and economical implications. (Financial loss, group and peer detachment, preferring isolation) **Conclusion:** The results of this study showed that dog bite patients experience an unpleasant phenomenon in the face of being bitten by the dogs and are subjected to severe psychological pressures that require attention and support of medical professionals, psychologists and government authorities.

Key words: Dog bites, Post-exposure prophylaxis, psychological, Rabies.

Introduction:

Rabies remains one of the principal public health problems, having economic, social, and human health dimensions in many countries of the world. The animal bite patients suffer not only from the physical effects of the bite but also from the intangible psychological consequences. Animal mauling, especially by dogs remains a worldwide problem that is sometimes fatal and particularly affects children.[1,2] Furthermore, children afflicted by dog bites mostly receive injuries on the head; and have a higher risk of resulting in serious injury or death.[3,4] The World Health Organization (WHO) faltered to achieve the target of elimination of human rabies transmitted by dogs in South-East Asia by 2020. In India, around 15 million people are bitten by animals every year and the majority of bites are by dogs.[5] The post-exposure rabies prophylaxis to these canines and other animal

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bite victims leads to enormous economic losses annually. There are fewer studies explaining dog bite victims livid in experience and phenomenon. Thus a study giving a qualitative perception of animal bite victims needs to be assessed to present their secluded suffering. Moreover, there is a need to assess and present the secluded suffering of the dog bite victims. The neglected flipside of this public health problem is of significant concern. There is a necessitated need for canvassing and prioritizing measures towards rabies elimination beyond existing statuesque post-exposure prophylaxis. Furthermore, there is a need to characterize the psychological and intrusive experiences of dog-bite victims to portray a picture beyond the public health perspective. As such an authentic, legitimate perspective that could potentially help in achieving the goal of rabies elimination by garnering a more holistic response from the various stakeholders and policymakers towards achieving the goal of a rabies-free world by 2030 is very much needed.

There are substantial numbers of studies showcasing burden of rabies disease, epidemiological profile, factors for delay in getting post-rabies prophylaxis (after animal bite) and economic burden of post- exposure rabies prophylaxis. However, there is scarcity of studies showing intangible aspect of dog bite victims or animal bite victims. The study aims to highlight the elusive impalpable aspect of the dog bite victims, so that policy makers and health care professionals become cognizant of this immense and evasive complication associated with the dog bite victims. Moreover, study will provide a propelling thrust of advocacy in mobilizing opinion of policy makers in taking curbing measures towards the menace of stray dog bites and elimination of dog mediated Rabies."

Method:

The qualitative phenomenological study was conducted on dog bite victims attending the anti-rabies clinic of the SMHS hospital in Kashmir to get an understating of the lived-in experiences of the dog bite patients. The study period was November-December 2021.

Colaizzi's phenomenological method was used for data analysis as it generates patterns having similarities and tries to reveal the explanations that people experience in particular circumstances.[6] The approach guarantees the authenticity of the collected experience of participants in particular circumstances. This method was used as it delves into the experience and feelings of the dog bite patients having gone through the identical phenomenon of agony and suffering.

Study subjects: Dog bite victims attending the anti-rabies clinic at SMHS hospital which caters to patients from whole Kashmir, The study was conducted at the anti-rabies (ARC) of SMHS hospital which receives animal-bite cases from the whole of Kashmir valley. Participants were selected by purposive sampling based on the inclusion criteria and data saturation occurred with eleven participant interviews. One to one in-depth interviews were conducted with eleven (11) dog bite victims, using a preformed interview guide.

Inclusion criteria: Only dog bite victims above the age of 18 years with WHO classification category III were included in the study & who gave written informed consent. The number of required respondents was determined by interviewing dog bite victims until the data saturation and no new topics were generated.

Approval from Institutional Ethics committee was taken before commencing the study.

Data Collection:

An interview guide (outline), with open-ended questions, was framed in advance based on consultation with two experts and a review of the literature. Interview timing was scheduled as per the convenience of participants. Informed consent (audio-recorded) was taken from the participant for participation and recording of the interview. Confidentiality and anonymity of identity were assured. The interview started with the introduction of the interviewer followed by explaining to the participants' research purpose, method, and content. The interviewer maintained neutrality, used techniques such as unconditional acceptance, active listening, to promote the authenticity of the data and to avoid bias. The interviewer familiar with the phenomenological qualitative method performed the interviews. All interviews were conducted by the

same researcher who has experience in qualitative studies interviewing and interviews were conducted in the Kashmiri language. However, interviewees were given the liberty to speak in English/Urdu/ Kashmiri. The interviewer asked questions appropriately according to the interview guide and recorded the key points and perceptible changes of the interviewees' mood and tone during the interview. The interviewees were not interrupted during the interview. The interviews ended once all the intended questions/content in the interview guide were fulfilled. The interviews lasted from 35 to 65 minutes. All recordings were transcribed within 24 hours with the verbatim English translation of Urdu/Kashmiri language used by the interviewees and data was analyzed by Colaizzi's phenomenological analysis method. The transcripts (interview materials) were read and reread several times to identify themes and categories by two researchers. Two researchers coded the transcripts line by line and extracted meaningful statements, and formulated themes for the meaning of sentences. Two researchers independently reviewed the themes, summarized conflicting opinions on the contents of a theme, and resolved them after discussion. After review, a coding frame was developed, and the transcripts coded. The coding frame was changed according to the development of new codes, and the transcripts were reread according to the new structure. The whole exercise was meticulously used to develop categories, which were transfigured into broad themes after further discussion. The specific steps are referred to as the phenomenological 7-step analysis method of Colaizzi. [7]

Study Rigor : The same interviewer who had expertise in qualitative studies conducted all interviews and researchers who read the transcripts were not involved in the interviewing process to reduce bias. Final themes were established during the thorough threadbare discussion with two researchers who were experienced and knowledgeable of the standard qualitative study analysis guidelines.[8]

Results:

Demographic details of the participants are given in Table 1. Data analysis yielded three overarching themes and nine subthemes. (Table 2)

Theme 1: Spiritual and emotional ineffectualness :- The dog bite victims stated that after facing a mauling from the dogs, they developed a strong inner feeling of psychological and emotional instability.

Table 1: Demographic Details of the Participants

Participants' Gender	Age in Years	Marital Status	Education*	Occupation
Female	50	Married	Matriculation	Shopkeeper
Male	20	Unmarried	Pursuing BBA	Student
Male	45	Married	B.A	Readymade garments
Female	68	Married	8th class	Homemaker
Female	19	Unmarried	12th class	Student
Female	38	Married	M.A Urdu	Teacher
Male	21	Unmarried	B.Tech Student (fourth semester)	Student
Female	35	Married	11th	Homemaker
Male	39	Married	B.Sc	Orchardist
Male	24	Unmarried	12th pass	Sales executive
Male	74	Married	Matriculation	Retired Government employee

*BBA=Bachelor of Business Administration, BA=Bachelor of Arts, MA=Master of Arts, B.Sc.=Bachelor in Science

Table 2: Themes and Sub-Themes generated by Qualitative Analysis

Themes	Sub-themes
1. Spiritual and emotional ineffectualness.	I. Suffering and affliction ii. Spiritual sulkiness, iii. Emotional emergence,
2. Flashbacks of being hindered and defenseless.	I. Lack of focus in one's work, ii. Lacking the courage to protect, iii. Being shaky
3. Social and economical implications.	I. Financial loss, ii. Group and peer detachment iii. Preferring isolation

They felt subdued, shaken up, and defeated. They wanted to shrug off the memories of the unpleasant events they had experienced after getting bitten by the dogs.

"…….Soon after offering my Fajar Namaz (morning prayers), some 7 to 8 dogs chased me, it was terrifying. I tripped down and they mauled me, both bones in my forearm got fractured. I suffered multiple wounds, no one was around there. I felt low and shaken to the core, my inner self is in tatters ……."

"……After realizing I was hounded by the dogs, I felt perished for a moment. At that moment, I just regretted my helplessness….."

"…….I lost my wages, my shop is closed, I am very upset, suffered my regular work. I was really afraid at that moment and felt they might kill me and what will happen to my family……"

Theme 2 : Flashbacks of being hindered and defenseless.

The experiences shared by these dog bite victim interviewees showed that they had suffered an internal failure and helplessness. They had suffered disgrace and some of them felt disarrayed as a wide array of emotional responses were reported by them after the dog biting incident like fear, shock, anger, frustration, dejection, irritation, and feeling perpetual vulnerability.

"…….I feel torn out and debased, the dog licked my face after biting my hand, leg, and forearm. I can tell you, it not only scuffed me physically but mentally as well……"

"…….I was working in the orchard, the pack of dogs mauled my four-year-old son, while trying to save him they attacked me as well. I got bitten as well. My son got severe lacerations on the face and injury on the right eye, he had to get operated on twice……..

" ……. There is still a lot that the surgeons need to do but we could afford expenditure till now only (crying)..."

Theme 3 : Social and economical implications.

The interviewees revealed that dog bites have substantial and far-reaching social and economical implications. Some of the respondents had suffered the loss of daily wages apart from out-of-pocket expenditure to meet the consequential dog bite management costs. The dog bite victims were unequivocal in their statements regarding the feeling of detachment and being thrown away.

"…….I lost wages for the whole week; I'm stuck at home due to tripping(due to a dog attack) related fracture in my right ankle. It is feeling nasty; you have to brood at home due to this awful dog bite……."

".…….they operated my son twice on the right eye, I had to spend Rs.24000/= out of my pocket on medicine and other things. It hit me hard and led me low and diminished monetarily ……"

"……..can't make ablution, can't offer routine prayers, my forearms and buttocks are bitten, the whole pack of dogs pounced on me on that day. I am nursing my wounds at home……."

Discussion:

The study has explored the experience of dog bite victims to galvanize the perception of these patients towards the impacts of the dog bite injuries on their life. Furthermore, in this qualitative study, we attempted to discover livid experiences of dog

bite victims and inquired on how they cope with the sudden changes in their life after the incident. There are very less number of studies having adopted phenomenological approach for the study of phenomenon of dog bite victims ,so, comparison with other studies couldn't be done after doing thorough review of the literature to the best of our abilities. Moreover, our objective is to complement other existing studies[9-11] and assemble argument for the advocacy of measures towards rabies elimination. As the precursor to intangible sufferings of these victims is dog bite only. We need to nip it in the bud. Therefore, it revolves around the pivotal measures towards rabies elimination. Our study highlights the flip side of the sufferings to mobilize support for the measures towards elimination of dog mediated human rabies.

Present study noticed and demonstrated another side of the dog bite victims, the inexplicable suffering meted out by them was brought to the fore which shows they had a proverbial "dog's life" immediately after being bitten by the dogs. We explored the impalpable emotional, mental, and inner sufferings of the dog bite victims; nonetheless, the intangible hurt endured by children after being bitten by dogs couldn't be translated. Moreover, children are vulnerable to getting bitten on the head and neck, mostly leading to awful injuries needing cautious and careful management.[9] There is a need to think and examine out-of-box measures to attain the goal of achieving a dog-free world. We need to look beyond the capture, neuter, vaccination, and release policy. There is a potential need for the use of oral rabies vaccines (ORVs) in free-roaming dogs in India to control dog transmitted rabies. Due to a lot of attentive and iterative work on ORVs over the last four decades, we are having modern and more efficacious ORVs with high safety profiles whilst generating a consistent immune response. Pertinently, the use of oral rabies vaccines has shown favorable gains in putting brakes to canine-mediated rabies in Europe and the USA. The ORVs to free-roaming accessible and evasive canines can prove not only cost-effective but a humane measure in a country like India where every 2 seconds a person is bitten by a dog and more than three million people receive post-exposure prophylaxis treatment each year.[10] Moreover, India reports 36% of the world's rabies deaths as rabies is endemic here and approximately 18,000-20,000 rabies deaths are reported each year of which 30 -60% are children less than 15 years of age.[11] So, capacity building: training dog vaccinators and dog catchers, switching from dog population control to mass dog ORVs campaigns can prove a game-changer in the fight against rabies. Present study manifested the noticeable need of controlling and preventing incidents of dog bites and dog mauling to prove humane to humans.

Conclusion and recommendations:

The study provides an elucidative and explanatory analysis of the lived experiences of dog bite victims, wishing to draw the attention of the planners and policymakers. The study creates propelling thrust for the use of cost-effective mass dog vaccination program in the Indian context. The results of this study showed that dog bite patients experience an unpleasant phenomenon in the face of being bitten by the dogs and are subjected to severe psychological pressures that require attention and support of medical professionals, psychologists and government authorities.

There is a need to pay attention to the dog bite victims' lived experience, and health care professionals need to support them through education, and counseling. The policymakers should devise other supportive programs to minimize the psychological trauma caused by the dog bites, apart from enhancing measures towards elimination of dog mediated human rabies.

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Reference:

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Original Article

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Prevalence and Associated Risk Factors of Depression among Housewives: A Cross Sectional Study from Rural Community of Rajasthan, India

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Abstract:

Introduction : Depression is the leading cause of disease-related disability among women in the world today. Depression is a serious condition that can impact every area of women's life. It affects social life, family relationships, career, and one's sense of selfworth and purpose. **Objective:** To determine the prevalence and associated risk factors of depression among rural housewives aged 18–59 years. **Method:** A community based cross sectional study was carried out among 414 housewives in rural field practice area of Department of Community Medicine, Jhalawar Medical College, Jhalawar, Rajasthan. Participants were selected by simple random sampling technique. A pre designed semi structured proforma was used for collecting information on socio-demographic characteristics, medical history, family problems, personal history and obstetrical and gynecological history. Assessment of depression was done by using self-reported instrument Patient Health Questionnaire-9 (PHQ-9) **Results:** Out of 414 Housewives, 63 (15.2%) were found to have depression. With increasing education level, there was a declining trend toward depression. Significantly higher rates of depression were observed among housewives reporting any debilitating ailments in one or more family members (31.2%), some unusual events occurred in family in past (56.2%), presence of any addiction in family members (22.7%) and debt on family (58.8%). Marriage at early age, having first pregnancy at early age, more than two children, menstrual irregularities and suffering from unable to conceive or infertility were the biological factors significantly associated with depression. **Conclusion:** Prevalence of depression was high among housewives in rural community. Many social and biological factors were contributing towards high rate of depression among housewives.

Keywords: Depression, Education, Housewives, Social.

Introduction:

Health is defined as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.[1] A sound mind in a sound body has been recognized as a social ideal for many centuries. Mental health is not exclusively a matter of relation between persons; it is also a matter of relation of the individual towards the community he lives in, towards the society of which the community is a part and towards the social institutions which for a large part guide his life, determine his way of living, working, leisure, and the way he earns and spends his money, the way he sees happiness, stability and security.[1]

Depression is the leading cause of disease-related disability among women in the world today.[2] It is much more common among women than men, with female/male ratio roughly 2:1.[2] Depression is estimated to affect more than 350 million people globally.[3]

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Women do not experience more mental illness than men; they are simply more prone to depression and anxiety, whereas men are more likely to have addictive disorders and personality disorders.[4] Women are approximately twice as likely as men to experience a depressive episode within a lifetime. Gender differences in rates of depression emerge at puberty and decline after menopause, highlighting the complex and reciprocal interactions that occur between biological, psychological and sociocultural factors.[4]

Housewives are the backbone of our Indian society. Very few literatures are available on depression among rural housewives in India. Indian studies showed that middle-aged women reported more psychological distress, more medical problems and lower morale than men.[5] Anxiety and depressive disorders are among the most common psychiatric disorders in the community. Depression is a serious condition that can impact every area of women's life. It affects social life, family relationships, career and one's sense of self-worth and purpose.[6] Housewives play a major role in family and society. Additional responsibilities due to modernization in rural areas have lead to increased stress and tension among housewives.[2]

Affective disorders are nearly twice more common among women than men. Depression, the prototype mood disorder is a painful emotional experience that involves intense suffering that can drain the meaning of life, excitement and pleasure.[7] With this background, this researchwas conducted to determine the prevalence and associated risk factors of depression among housewives aged 18–59 years in the rural area of district Jhalawar, Rajasthan.

Method:

A cross sectional study carried out in rural field practice area of Department of Community Medicine, Jhalawar Medical College, Jhalawar, Rajasthan from December 2021 to May 2022. The study population consist housewives aged 18–59 years residing in rural field practice area, Mandawar.

Inclusion criteria: The housewives aged 18-59 years who were willing to participate in the study.

Exclusion criteria: The housewives not willing to participate in study, not providing written consent and not available at the time of data collection were excluded. Housewives already diagnosed with any psychiatric disorders were also excluded.

Sample size: The sample size calculated for the present study was 376 at 5% level of significance and 5% absolute precision using 43% prevalence of depression among housewives in a previous study.[8] Taking a non-response rate of 10%, the sample size came out to be 414. Hence, in present study, 414 housewives, after satisfying inclusion and exclusion criteria were included as study participants.

Study Method: Participants were selected by simple random sampling technique by using random number table method. A pre designed pretested semi structured proforma was used for collecting information on socio demographic characteristics, medical history, family problems, personal history and obstetrical and gynecological history. Housewives were asked about family and social problems. In personal history, participants were asked about financial dependence on husband or other family members, autonomy of housewife in decision-making, having fear of aging effect, having any addiction like smoking, tobacco chewing, alcohol consumption etc. Assessment of depression was done by using self-reported instrument Patient Health Questionnaire-9 (PHQ-9).[9] Subject with a PHQ-9 score of 10 or higher was considered as having at least moderate depression, as per international norms for PHQ-9. The participants identified having at least moderate depressionwere given information on depression and wereadvised to visit psychiatry OPD at tertiary care institute.

Data analysis: Collected data were entered into the Microsoft Excel 10. Results are expressed as percentage and described using descriptive and analytic statistics. Chi square test of significance was used for statistical analysis, p value < 0.05 was considered statistical significant at 5% level of significance.

Ethical Considerations: Approval from institutional ethical committee was taken before commencing the study. Nature and purpose of the study was explained to all participants in details before study and informed written consent was taken.

Results:

In present study, total 414 housewives were assessed as study participants. The mean age of the study participants was 36.74±8.54 years. Depression among housewives was assessed using Patient Health Questionnaire-9 (PHQ-9). In present study, 63 (15.2%) study participants were found to have depression.

Table 1 depicts association of some socio-demographic characteristics of study participants with depression. Among age group 40-49 years, 19.6% housewives were found with depression while 20.0% housewives were depressed in age group 50-59 years. It was seen that with increasing age, there was a rising trend toward depression. However, this difference was found to be statistically non-significant (P = 0.17). Out of 46 housewives, who were illiterate, 11 (23.9%) were found with depression. Among 217 housewives having education up to primary level, 40 (18.4%) were depressed. It was seen that with increasing education level, there was a declining trend toward depression and this difference was found to be statistically significant (P = 0.01). Almost equal proportions of housewives were found with depression in both nuclear (14.7%) and joint (15.3%) families (p=0.88). The depression was found among 19.3% housewives in the socio economic status class IV and among 23.7% in socio economic status class V. The association of depression with socio economic status class of participants was found to be statistically significant (P = 0.01).

Table 1 : Association of depression with socio-demographic characteristics of participants

Characteristics	Variables	Depression Present (N=63) n (%)	Depression Absent (N=351) n (%)	Total (N=414) n (%)	p value
Age groups (years)	18-29	11 (9.6)	104 (90.4)	115 (100)	0.17
	30-39	25 (15.4)	137 (84.6)	162 (100)	
	40-49	18 (19.6)	74 (80.4)	92 (100)	
	50-59	9 (20.0)	36 (80.0)	45 (100)	
Education	Illiterate	11 (23.9)	35 (76.1)	46 (100)	0.01
	Primary	40 (18.4)	177 (81.6)	217 (100)	
	Secondary	10 (8.2)	112 (91.8)	122 (100)	
	Graduate & Above	2 (6.9)	27 (93.1)	29 (100)	
Type of family	Joint	52 (15.3)	287 (84.7)	339 (100)	0.01
	Nuclear	11 (14.7)	64 (85.3)	75 (100)	
Socio economic status class*	I	3 (8.1)	34 (91.9)	37 (100)	0.01
	II	5 (9.3)	49 (90.7)	54 (100)	
	III	11 (9.4)	106 (90.6)	117 (100)	
	IV	21 (19.3)	88 (80.7)	109 (100)	
	V	23 (23.7)	74 (76.3)	97 (100)	

* Modified BG Prasad socioeconomic considering AICPI value 125.7 for the month of November 2021[21]

Table 2: Association of depression with family problems of participants

Characteristics	Variables	Depression Present (N=63) n (%)	Depression Absent (N=351) n (%)	Total (N=414) n (%)	p value
Any debilitating ailment in a family member	Yes	10 (31.2)	22 (68.8)	32 (100)	0.02
	No	53 (13.9)	329 (86.1)	382 (100)	
Any unusual events in family in past	Yes	9 (56.2)	7 (43.8)	16 (100)	<0.001
	No	54 (13.6)	344 (86.4)	398 (100)	
Verbal abuse by husband or other family members	Yes	7 (63.6)	4 (36.4)	11 (100)	<0.001
	No	56 (13.9)	347 (86.1)	403 (100)	
Restrictions in movements by family members	Yes	22 (15.2)	123 (84.8)	145 (100)	0.81
	No	41 (15.2)	228 (84.8)	269 (100)	
Presence of any addiction in family members	Yes	29 (22.7)	99 (77.3)	128 (100)	0.004
	No	34 (11.9)	252 (88.1)	286 (100)	
Neighborhood problems	Yes	14 (17.9)	64 (82.1)	78 (100)	0.46
	No	49 (14.6)	287 (85.4)	336 (100)	
Debt on family	Yes	10 (58.8)	7 (41.2)	17 (100)	<0.001
	No	53 (13.4)	344 (86.6)	397 (100)	

Association of family problems of participants with depression is depicted in Table 2. Significantly higher rates of depression ($p<0.05$) were observed among housewives reporting any debilitating ailments in one or more family members (31.2%), some unusual events occurred in family in past (56.2%), some kind of verbal abuse by husband or other family members (63.6%), presence of any addiction in family members (22.7%) and debt on family (58.8%). Association of depression among participants with movement restrictions and neighborhood problems were found statistically non-significant ($p>0.05$).

Table 3 depicts association of medical and personal history of participants with depression. Out of 81 housewives reporting history of any chronic illness, 21 (25.9%) were found with depression and this association was statistically significant ($p= 0.002$). No signification association ($p>0.05$) was found with other personal factors like financial dependence on husband or other family members, autonomy in decision-making in the household, fear of aging effect and any addiction among study participants.

Association of obstetrical and gynecological history of participants with depression is depicted in Table 4. Significantly higher rates of depression ($p<0.05$) were found among housewives reporting marriage at early age, having first pregnancy at early age, having more than two children, suffering from

Table 3: Association of depression with medical and personal history of participants

Characteristics	Variables	Depression Present (N=63) n (%)	Depression Absent (N=351) n (%)	Total (N=414) n (%)	p value
History of any chronic illness	Yes	21 (25.9)	60 (74.1)	81 (100)	0.002
	No	42 (12.6)	291 (87.4)	333 (100)	
History of any surgery	Yes	16 (17.4)	76 (82.6)	92 (100)	0.51
	No	47 (14.6)	275 (85.4)	322 (100)	
Financial dependence	Yes	55 (14.3)	329 (85.7)	384 (100)	0.12
	No	8 (26.7)	22 (73.3)	30 (100)	
Autonomy in decision-making	Yes	22 (14.7)	128 (85.3)	150 (100)	0.81
	No	41 (15.5)	223 (84.5)	264 (100)	
Fear of aging effect	Yes	34 (16.1)	177 (83.9)	211 (100)	0.60
	No	29 (14.3)	174 (85.7)	203 (100)	
Any Addiction	Yes	17 (21.0)	64 (79.0)	81 (100)	0.11
	No	46 (13.8)	287 (86.2)	333 (100)	

menstrual irregularities and suffering from unable to conceive or infertility due to various reasons. Comparatively high proportion of depression was observed among housewives reporting menopause (20.7%) and fear of unplanned pregnancy (18.1%), however, difference was found statistically non-significant (p>0.05).

Discussion:

Mental health is a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community.[10] Depression is the most common psychiatric disorder in general practice. It is a significant contributor to the global burden of disease and affects people in all communities across the world.[11]

In present study, total 414 housewives were assessed as study participants. The mean age of the study participants was 36.74±8.54 years. In our study, 15.2% study participants were found to have depression. In accordance to our study, Poongothai et al[12] in their study reported that prevalence of depression among females was 16.3% in urban Chennai. In contrast to our study, Obadeji et al[13] observed the prevalence of depression to be 47.8% in their study. The prevalence of syndromal depression in the study population was found to be 86.7% in study by Priya Bansal et al.[14] Mathias et al[15] in July 2014 conducted a cross-sectional study in Uttarakhand and reported 7.9% prevalence of depression in female subjects.

In present study, among age group 40-49 years, 19.6% housewives were found with depression while 20.0% housewives were depressed in age group 50-59 years. It was seen that with increasing age, there was a rising trend toward depression.

Table 4: Association of depression with obstetrical and gynecological history of participants

Characteristics	Variables	Depression Present (N=63) n (%)	Depression Absent (N=351) n (%)	Total (N=414) n (%)	p value
Age at the time of marriage (years)	<20	26 (25.0)	78 (75.0)	104 (100)	0.01
	20-23	25 (13.1)	166 (86.9)	191 (100)	
	23-26	9 (10.8)	74 (89.1)	83 (100)	
	>26	3 (8.3)	33 (91.7)	36 (100)	
Age at the time of first pregnancy (years)	<20	20 (26.0)	57 (74.0)	77 (100)	0.02
	20-23	21 (12.3)	150 (87.7)	171 (100)	
	23-26	9 (9.4)	87 (90.6)	96 (100)	
	>26	5 (19.2)	21 (80.8)	26 (100)	
	Not pregnant ever	8 (18.2)	36 (81.8)	44 (100)	
Total no of Children	1 or 2	32 (11.9)	238 (88.1)	270 (100)	0.009
	More than 2	31 (21.5)	113 (78.5)	144 (100)	
Menopausal status	Yes	17 (20.7)	65 (79.3)	82 (100)	0.41
	No	56 (16.9)	276 (83.1)	332 (100)	
Fear of unplanned pregnancy	Yes	13 (18.1)	59 (81.9)	72 (100)	0.46
	No	50 (14.6)	292 (85.4)	342 (100)	
Menstrual irregularity	Yes	14 (24.1)	44 (75.9)	58 (100)	0.04
	No	49 (13.8)	307 (86.2)	356 (100)	
Unable to conceive/Infertility	Yes	7 (58.3)	5 (41.7)	12 (100)	<0.001
	No	56 (13.9)	346 (86.1)	402 (100)	

However, this difference was found to be statistically non-significant (P = 0.17). In accordance to our study, Priya Bansal et al[14] also reported that with increasing age there was an increasing trend toward depression but difference between prevalence of depression and age group was found to be statistically non-significant. Poongothai et al[12] also reported a rising trend in the prevalence of depression among housewives with increase in age.

In present study, it was seen that with increasing education level, there was a declining trend toward depression and this difference was found to be statistically significant (P = 0.01). This indicates that education can be impactful measure in reducing the burden of depression in community. Similar observation was reported by Mathias et al.[15] In contrast to our study, the relation between higher education status and lesser depression was not found to be statistically significant in study by Divija Pillai et al.[16] Yeoh Si H et al[17] found that there was no significant relation between education and depression.

Almost equal proportions of housewives were found with depression in both nuclear and joint families in present study. There was no statistically significant association between type of family and depression. Similar to our study, no statistically significant relation found between family type and depression in study by Divija Pillai et al. [16]

In present study, higher rates of depression were found in subjects with lower Socio economic status class. The association of depression with low Socio economic status class of participants was found to be statistically significant. Similar to our study, participants belonging to BPL family suffered from depression much more (p = 0.011) compared to APL families in study by Divija Pillai et al.[16]

In present study, depression was present among 31.2% housewives reporting any debilitating ailment in a family member. Depression rates were significantly much higher among housewives reporting any unusual events in family in past (56.2%) and facing verbal abuse by husband or other family members (63.6%). 58.8% housewives were found with depression who reported debt on family. Divija Pillai et al[16] found that 15% of participants who had suffered from death of a close family member or relative were depressed for which they found a statistically significant association. They also reported significant association of depression with mental illness in family and financial burden.

In present study, among housewives reporting history of any chronic illness, 25.9% were found with depression and this association was statistically significant (p = 0.002). Patel et al[18] reported a statistical significant association between chronic physical illness and common mental disorders in their study. In contrast to our study, presence of chronic illness in participants was not found to be statistically associated with depression in study by Divija Pillai et al.[16]

In present study, significantly higher rates of depression ($p<0.05$) were found among housewives reporting marriage at early age, having first pregnancy at early age, having more than two children, suffering from menstrual irregularities and suffering from unable to conceive or infertility due to various reasons. This finding indicates that biological factors play an important role in mental well-being of housewives.

Pilania M et al[19] conducted a study in Haryana and found that chronic morbidity, elderly, not being consulted for decisions in family, lack of work or hobbies and death of close relative in previous one year had a relation with depression. M Buvneshkumar et al[20] carried out a study in rural Tamil Nadu among elderly and found that overall prevalence of depression was 35.5%. Nuclear family, widowed status, death of close family member or relative, conflicts in family, unemployed or low socioeconomic status, cardiac disease and visual impairment were related with depression.

Conclusion:

In present study, prevalence of depression was found to be 15.2% among housewives in rural community. Lower education level and lower Socio economic status were the socio-demographic factors significantly associated with high prevalence of depression. Among the family problems of the housewives, significantly higher rates of depression were observed among housewives reporting any debilitating ailments in one or more family members, some unusual events occurred in family in past, some kind of verbal abuse by husband or other family members, presence of any addiction in family members and debt on family. Presence of chronic illness was the medical factor significantly contributing to depression. Marriage at the early age, having first pregnancy at early age, more than two children, menstrual irregularities and suffering from unable to conceive or infertility due to various reasons were the biological factors significantly associated with depression among housewives.

Recommendations:

By detecting depression at early levels, providing impactful awareness programmes and making sound efforts to reduce the stigma through information, education and communication can help to reduce the burden and impact of problem and will provide an atmosphere to work efficiently with good quality of life. Emphasis should be given on education of housewives about warning signs of mental disorders. Housewives should be motivated to avail mental health care services. Future studies should be carried out on women with large sample size with different socio-economic backgrounds to explore the individual, socio-cultural and the biological factors responsible for depression and its impact onvarious aspects of life.

Declaration:

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Conflict of Interest: Nil

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Knowledge and Perception of Child Maltreatment among Parents of Under 18 children in a Metropolitan City: A Cross-Sectional Study

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Abstract:

Introduction : Child maltreatment is the abuse and neglect that occurs to children under 18 years of age. It includes all types of physical and/or emotional ill-treatment, sexual abuse, neglect, negligence and commercial or other exploitation. **Objective :** To assess the Knowledge and perception of Child maltreatment among parents of Under 18 children. **Method :** This was a Cross-Sectional Study done among parents of paediatric patients (aged under 18 years) who attended a private tertiary level hospital. A total of 324 selected parents were interviewed during the study period. The study was conducted in the form of a questionnaire which consisted of 3 parts. **Results :** In the study 96.2% of the parents who participated were aware of the term "child abuse" but among them, 6.1% were unaware of the fact that there are different types of abuse. More than 2/3rd (76.85%) of the parents felt that alcohol influences the behavior of predators of child abuse. Overall, age, education level, and marital status were the statistically significant factors in the current study. **Conclusion:** The parents in our society today are aware of what child abuse is and its influence on children, society, and the community in general but the knowledge related to legislations have to improve.

Keywords: Child maltreatment, Knowledge, Perception, Parents, Protection of Children from Sexual offences (POCSO) act

Introduction:

Child maltreatment is the abuse and neglect that occurs to children under 18 years of age. It includes all types of physical and/or emotional ill-treatment, sexual abuse, neglect, negligence and commercial or other exploitation, which results in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power. [1] It is one of the most significant and widespread social problems in the world and it is reported that nearly 3 in 4 children aged 2-4 years regularly suffer physical punishment and/or psychological violence at the hands of parents and caregivers, and 1 in 5 women and 1 in 13 men report having been sexually abused as a child.[1]

Violence against children threatens not only children's survival and health but also their emotional well-being and prospects. Violence against children is widespread and remains a harsh reality for millions of children in India. Over half of the world's children have experienced severe violence and 64 per cent of these are in South Asia.[2] Maltreatment to a child can happen in a child's home, school, or the community in which the child interacts, and it is more prevalent in the urban areas than in rural areas.[3] Exposure to multiple types and

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repeated episodes of maltreatment is associated with increased risks of severe maltreatment and psychological consequences. It substantially contributes to child mortality and morbidity and has long-lasting effects on mental health, drug, and alcohol misuse (especially in girls), risky sexual behavior, obesity, and criminal behavior, which persist into adulthood.[4]

Parents play a crucial role in the development of their children. However, changing social, economic, educational, and technological contexts are influencing the lives and roles of parents as well as those of their children. [5,6] The parents need to have sound knowledge on the issue of Child maltreatment and thus the present study was done to assess the same among the parents of young children.

Method:

This was a Cross-Sectional Study done among parents of paediatric patients (aged under 18 years) who attended a private tertiary level hospital. The duration of the study was 3 months (January-March 2021). The study participants were selected using the convenient sampling method. A total of 324 eligible parents were interviewed for the study during the study period. The data was collected with a questionnaire which consisted of three parts. The first part of the questionnaire consisted of the socio-demographic details of the participants of the study. The second part of the questionnaire tests the knowledge of the participating parents regarding child maltreatment (abuse) and the final part of the questionnaire assessed the perception of the parents about child abuse and related questions.

A total of 14 questions were specific to knowledge and people who correctly answered 7 or more were considered to have 'good knowledge' while others were considered as 'poor'. A pilot study was undertaken to test the validity and reliability of the data collection tool and to identify possible field problems and modifications were made accordingly. The questionnaire was prepared with the help of various subject experts.

Method of Data Collection :

After getting approval from the Institutional Ethics committee, the study was conducted among the study participants. Before the interview, the nature and purpose of the study were explained and then informed consent was obtained which was followed by a face-to-face interview with each participant to collect data. In the situation where both parents were present, one of them was asked to volunteer for the study. The responses were collected with the help of the questionnaire.

Data Analysis

All data were entered in the Micro soft Excel spreadsheet and analyzed using the SPSS software package Trial version. Results were reported as percentages. A Chi-square test was done to study association. A p-value of less than 0.05 was considered statistically significant.

Results:

The study was conducted among the parents attending a tertiary care hospital in Chennai, regarding the knowledge and perception of child maltreatment (abuse). The mean age of the participants was 40 years and more than 90% of the participants were graduates and above. About 90% of the participants were married. More than 80% of the parents had an income of >10,000 INR (Table1).

Table 1 : Socio-Demographic Variables of Study Participants (N=324)

Variables	n (%)
Age (years)	
< 20	11 (3.3)
20-40	61 (18.9)
> 40	252 (77.8)
Gender	
Female	243 (75)
Male	81 (25)
Income	
<5000 Rs. per month	35 (10.8)
5000 Rs-10000rs Per month	15 (4.6)
> 10000 Rs per month	263 (81.1)
Nil	11 (3.5)
Marital status	
Married	286 (88.3)
Unmarried	34 (10.5)
Separated	4 (1.2)

Table 2 : Knowledge about child maltreatment among parents (N=324)

Knowledge related to Child maltreatment	Variables	n (%)
Did you know there are different types of abuse?	Yes	278 (85.8)
	No	20 (6.2)
	Some what	26 (8)
Child abuse is just sexual violence	Agree	18 (5.5)
	Disagree	290 (89.5)
	Not sure	16 (5)
Does abuse include verbal force?	Yes	267 (82.4)
	No	14 (4.3)
	Doesn't Know	43 (13.3)
Children are sexually abused by older children	Agree	206 (63.5)
	Disagree	29 (9)
	Not sure	8927.(5)
Do you think only girl children are victims of sexual abuse	Yes	15 (4.6)
	No	289 (89.2)
	Not sure	20 (6.2)
Do you know about the POCSO Act?	Yes	184 (56.8)
	No	123 (38)
	Some what	17 (5.2)
Does abuse happen only in domestic setting?	Yes	9 (2.8)
	No	304 (93.8)
	May be	11 (3.4)

Table 3: Perception about child maltreatment among parents (N=324)

Knowledge related to Child maltreatment	Variables	n (%)
Are you in favor of stricter laws for child abuse offenders?	Yes	230(71)
	No	40(12.3)
	Maybe	54(16.7)
Child abuse occurs only in lower socio-economic strata	Agree	9(2.8)
	Disagree	295(91)
	May be	20 (6.2)
Who are the most common perpetrators of child abuse according to you	Family members	141(43.5)
	Strangers	66(20.4)
	Family friends	63(19.4)
	Male Gender	53(16.4)
	Female gender	1(0.3)
Do you think, it is okay to verbally offend, yell, humiliate or create the feeling of unworthiness in the child as a form of punishment	Yes	4(1.2)
	No	303(93.5)
	Maybe	17(5.3)
Do you think alcohol influences the behavior of parent towards the child?	Yes	249(77)
	No	10(3)
	Maybe	65(20)
In sexual abuse, a child is never responsible	True	205(63.2)
	False	42(13)
	Maybe	77(23.8)

Knowledge about child maltreatment (abuse) among parents

In the study, 96.29% (312/324) of the parents who participated were aware of the term "child abuse" but among them,6.17% (20/324) were unaware of the fact that there are different types of abuse done to children. More than half (63.58%) agreed that it was older children that abused ones younger than them and 82.40% believed that it wasn't just physical but verbal abuse too that affected children. It was well understood among 96.29% of the participants that children can get mental problems such as anxiety and depression because of childhood trauma. While 56.79% knew what the POCSO Act was, nearly one third (37.96%) was oblivious to it. On the other hand, more than half (53.08%) did not know about the RTE Act 2009. (Table2)

Perception about child maltreatment (abuse) among parents

The perception among parents regarding child abuse was recorded and it was observed that a vast majority (97.83%) felt that child abuse is a topic of grave importance in society. It was also observed that 90.43% of the participants agreed that physical punishment should not be resorted to when children misbehave, and more than half (63.27%) of the

Table 4: Association between Sociodemographic variables & Knowledge level of Child Maltreatment (N=324)

Study Variables		Knowledge level (Child Maltreatment)		Total	p-value
		Good (%)	Poor (%)		
Gender	Female	203 (83.5)	40 (16.5)	243	0.24
	Male	63 (77.8)	18 (22.2)	81	
Age (years)	Up to 40	66 (24.8)	6 (8.6)	72	**0.007***
	More than 40	200 (75.2)	52 (91.4)	252	
Education status	Up to Graduate	75 (28.2)	27 (46.6)	102	**0.006***
	More than Graduate	191 (71.8)	31 (53.4)	222	
Income level, monthly	Up to 10,000 INR	39 (14.7%)	11 (19)	50	0.411
	More than 10,000 INR	227 (85.3%)	47 (81)	274	
Marital Status	Married	229 (86)	56 (97)	285	**0.027***
	Others	37 (14)	2 (3)	39	
Type of Family	Joint	98 (36.8)	21 (36.2)	119	0.920
	Nuclear	168 (63.2)	37 (63.8)	205	

participants agreed that in cases of abuse it is seldom the child's fault for his or her situation. There were a few (15.43%) parents who had a neutral response as to whether it is always girls who are victims of sexual abuse, but more than half (51.54%) disagreed with this statement.1/4th (26.85%) of the participants felt that most sexual abuse of boys is committed by homosexual males. More than two thirds (76.85%) of the parents felt that alcohol influences the behavior of predators of child abuse and that about 43.51% of parents think that the perpetrators are family members, in addition, nearly two thirds of the participants feel that there is a need to strengthen the education regarding child and sexual abuse. Around 70.98% of parents were in favor of stricter laws in cases of child abuse (Table 3)

Association between the level of knowledge and Sociodemographic variables

It was observed that 82% (266/324) had good Knowledge of Child abuse as per the scoring in our study and it was observed that Females had more knowledge when compared to males (83.5% vs 77.8%) This difference, however, was not found to be statistically significant. The level of knowledge was also found to be more among those aged >40 years (75.2%) when compared to younger groups and this was found to be statistically significant ($p<0.05$). The level of knowledge was also found to be higher among Postgraduates (71.8%), married (86%) and parents with Income levels of more than 10,000 INR (85.3%). Overall, age, education level, and marital status were the statistically significant factors with levels of knowledge of child maltreatment in the current study. (Table 4)

Discussion:

Protection of a child is the primary responsibility of a parent as they play a very important role in a child's life. Childhood is an important part of growing up and developing one's personality, qualities, and traits. Any trauma suffered by them at their tender age would affect their adult life and evidence suggests significant associations between sexual abuse during childhood and subsequent mental health problems such as depression, anxiety disorders and suicidal thoughts and behavior.[7]

Knowledge & Perception regarding maltreatment (abuse)

The current study shows that more than 80 % of the study participants had a 'good knowledge 'regarding Child abuse. A study done among Nepalese parents revelated that half of them had 'good knowledge' regarding child abuse.[8] This contrasts with a study done by Yashika et al in Central India which showed a lack of knowledge amongst parents regarding child abuse, including sexual violence, physical violence, negligence and mental abuse.[9] The reason for the high level in our study could be because the majority of the current study participants have a higher level of Education. Also in the study, a majority (96.29%) of our participants acknowledged it as a problem in society and this was consistent with the studies in the Middle East countries. [10,11]

We also observed in the present study that nearly 90% of the participants who were aware of child abuse believe that it does not confine itself to sexual abuse alone and there were other forms of abuse as well. About 90 % of the study participants agreed that physical punishment should not be resorted to when children misbehave. Similarly, in Lopez et al, parents acknowledged using physical punishment to discipline children but reported it as their least preferred method.[12]

In our study, 10 percent of the respondents responded that boys can also be a victim of child abuse which contrasts with another study by Hendaus et al, where they had the opinion that nearly one forth participants agreed that boys were generally more abused than girls. [13]

We also observed that more than half (60.80%) of parents agree that family members are perpetrators, which agrees with a Nicaraguan study, which says the most common abusers of children younger than 12 were male family members ,including uncles, cousins, and fathers.[14] These responses are justified because young children spend most of their time with their extended family who acts as caregivers in the absence of their parents.Nearly $3/4^{th}$ of the study participants believe that alcohol influences the behavior of the parent towards the child, and this was in agreement with the OPTIMUS study done in South Africa.[15]

Laws related to Child Abuse

More than two thirds of the study participants felt there is a need for stricter law in cases of Child abuse. In a study conducted by Yashika Sharma et al only 3% of parents were well informed about the POCSO ACT (Protection Of Children Against Sexual Offences Act,2012) act while 28.5% knew regarding the RTE act (Right To EducationAct,2009) but contrastingly we see that in our study 56.79% were aware of the POSCO act and 42.59%were aware of the RTE act.[9] This can be attributed to the fact the study was done in an Urban Setting and among people who were highly educated. Around two thirds of the participants feel there is a need to address the issue of Child abuse through education at school. This was also seen in China, where 80% of respondents agreed for prevention education in school and were willing to let their children participate, a similar report was also published in Zambia. [16,17]

In the study age of the parents, education level, and marital status were the statistically significant factors for Child abuse knowledge, in a study done by Devi et al, only the Education of the parents was found to be a significant factor while Gurung et al had age has a significant factor.[8,18] Yadav et al in Rajasthan reported the age of the mother to be a significant factor.[19]

Overall, our study being a cross-sectional design and with minimal sample size, the generalizability is limited. Furthermore, exploratory studies are needed to understand more about this burning issue.

Conclusion:

This study has identified that the parents in our society today are aware of what child abuse is and its influence on children, society, and the community in general. Though the awareness is good, the knowledge, especially related to legislations must improve. There is a need for more sensitization programs, especially related to legislation.

Limitations:

The present study is limited to parents visiting a tertiary care hospital; hence the external validity of our study is limited. Further exploratory studies are

required to understand these lacunae in knowledge on child maltreatment.

Declaration:

Funding: Nil

Conflict of Interest: Nil

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A Retrospective Cohort study on Utilization of Rashtriya Bal Swasthya Karyakram (RBSK) Services among Children Screened at an Urban Health Centre (UHC) of Ahmedabad Municipal Corporation (AMC)

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Abstract:

Introduction : Rashtriya Bal Swasthya Karyakram (RBSK) is a systemic approach of 4'D's (Defect, Diseases, Deficiency, Developmental delay) for early identification and linkage with care, support and treatment. **Objectives :** (1) Document utilization of RBSK services within a year of referral, (2) Assess reasons for non-utilization of services and (3) Assess out of pocket expenditure (OOPE) among users and non-users of the program. **Method:** Retrospective Cohort Study was conducted at an Urban Health Centre (UHC) taking two cohorts of children referred for 4'D's during April 2018-March 2020 under RBSK. A total of 102 cases were sampled. Probability Proportionate to size (PPS) method was used to ensure proportionate representation of each of 4'D's in the sample. Required number of participants in each category were selected randomly. **Results:** Out of 102 sampled cases, 97 were covered. Utilization of services was 50.5%; major reasons for non-utilization were preference for private providers and reluctance to stay at Comprehensive Malnutrition Treatment Centre (CMTC). Mean OOPE in users was Rs. 21545, significantly less ($p < .05$) than Rs. 70198 in non-users. **Conclusion:** After referral by RBSK team, only half utilized the services. Among users, OOPE was less for total cost incurred and also for direct cost incurred like consultation charges, medicines, consumables etc. Counselling those parents whose children are detected with any of 4Ds, to visit Child Malnutrition Treatment Center (CMTC)/ District Early Intervention Center (DEIC) remains a challenge.

Keywords: Out of pocket expenditure (OOPE), Rashtriya Bal Swasthya Karyakram (RBSK), Urban Health Centre (UHC)

Introduction:

Rashtriya Bal Swasthya Karyakram(RBSK) is an ambitious and innovative program for children (0-18 years) to cover 4 'D's namely birth defects, chronic diseases, disability and developmental delays.[1] Under it, field staff such as Accredited social health activists (ASHA's) and mobile health teams do the community screening, while District Early Intervention Center (DEIC) mostly located at District headquarters screen, diagnose and treat children referred with 4'D's. Together these 4'D's contribute significantly to the childhood mortality, morbidity and out of pocket expenditure (OOPE). These 4'D's, if not corrected timely, result in permanent disabilities with regard to cognitive or hearing or visual defects.[1] Most studies on RBSK, either focussed on knowledge, attitude and practice (KAP) of service providers such as medical officers[2] or Accredited Social Health Activist (ASHA)[3] or evaluated the gaps in infrastructure, equipment and manpower or the outcome of the program at the District Early Intervention Centre (DEIC).[4,5] Very few studies are

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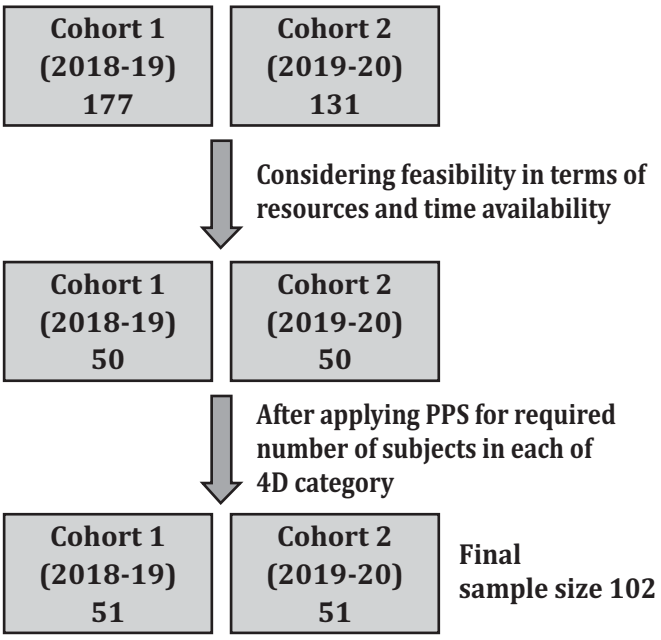
there documenting the outcome of children with 4'D's registered under the program based on the client inputs. Availability of limited data necessitates the need of such a study to identify the reasons for non-utilization of services and bridge the gaps to improve its utilization. Study was planned with the objectives to (1) document utilization of RBSK services, within a year of referral, (2) study reasons for non-utilization of services, suggest remedial measures and (3) compare out of pocket expenditure (OOPE) among users and non-users of the program.

Method:

Ahmedabad city, with a population of 55.77 lakhs[6] is governed by Ahmedabad Municipal Corporation (AMC) and is divided into 7 administrative zones (each zone with 10-12 Urban Health Centers). A Retrospective Cohort Study was conducted at Ognaj, UHC which is also the Urban Health training Center (UHTC) of Community Medicine Department, GMERS Medical College, Sola, Ahmedabad. Study population comprised of two cohorts of children registered and referred for 4Ds between April 2018-March 2019 (cohort 1) and April 2019-March 2020 (cohort 2) were listed from UHC and as shown in figure 1, there were 177 cases registered in first cohort while 131 in second cohort.

Figure 1 : Flow chart with sample size and sampling Technique



Considering the feasibility in terms of resources and time availability, it was decided to cover 50 children in each cohort. Probability Proportionate to Size (PPS) sampling technique was applied to ensure proportionate representation of each of 4'D's in the sample. While rounding off the numbers in each category while applying PPS, actual sample size became 51 for each cohort. Required number of participants in each of 4 D categories, then were selected randomly from the list. Cases from the study area whose Parent/ Care taker could be contacted and were willing to participate (gave informed written consent) were interviewed.

Home visits with prior appointment (as per convenience of care giver) were undertaken by trained investigators. Interview of main care taker was conducted to document the detail of utilization / non utilization on pre designed pretested semi-structured proforma. In order to address refusal and non-availability of subjects, at least one repeat visit was conducted. Study was approved by Institutional Ethics Committee and local health authority. While fixing the appointment, oral consent was taken for home visit on telephone, and written consent was obtained before taking the personal interview. During the visits, those needed medical assistance were referred to our hospital and their visits were facilitated by the investigators.

Results:

Out of total 102 cases selected from two cohorts for the study (Figure 1), 97 cases could be covered as rest (5) refused to participate. Out of 97 cases, 31 were detected by private practitioners/ Trust hospital followed by 25 detected by MO RBSK/ DEIC/ govt. delivery point, 23 by frontline workers and 16 by family members themselves. (Figure 2)

Out of 97 cases, 48 did not avail the RBSK services; rest (49) used it with utilization rate of 50.5%. Most cases were of defects among utilisers followed by those of deficiency while among non-utilisers, most cases were of deficiency followed by defect. (Table 1) Among the utilizers (49), 1 was expired, 22 were on treatment/ rehabilitation, 13 were cured against 0, 18 and 7 respectively among non-users (48). (Figure 3) When compared for these 3 outcomes, they were

Figure 2: Detection of 4 Ds registered under RBSK program (N=97)

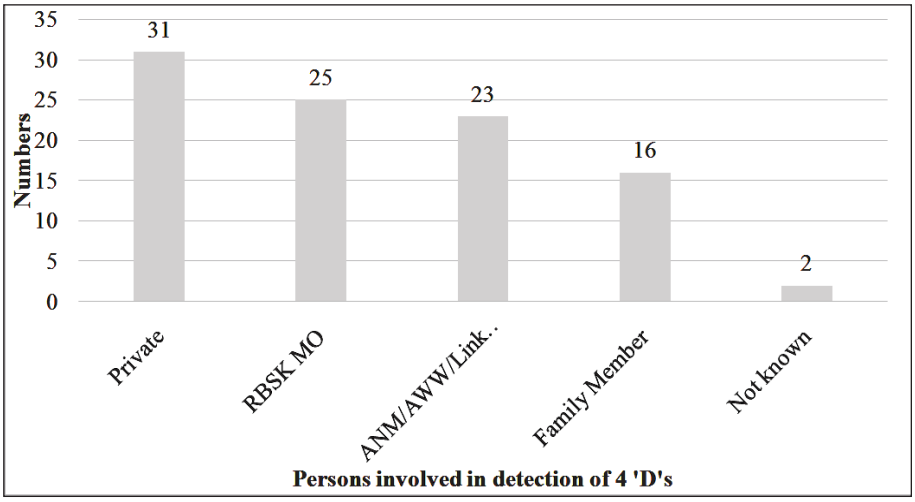


Figure 3: Current status of children based on Utilization of RBSK services (n=97)

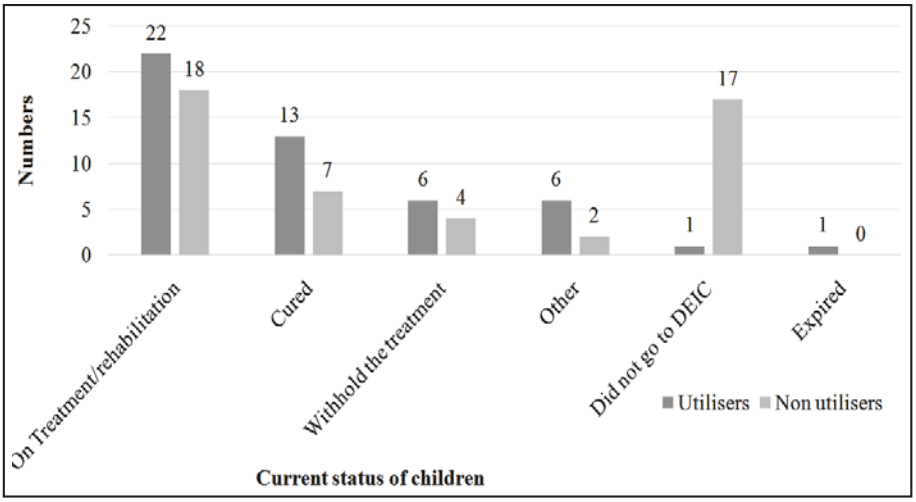


Table 1: Profile of beneficiaries who utilised and did not utilise RBSK services (N=97)

4 D Categories	Beneficiaries who utilised RBSK services (N = 49) No (%)	Beneficiaries who did not utilise RBSK services (N = 48) No (%)
Defect	27 (55.1)	20 (41.7)
Deficiency	18 (36.7)	21 (43.8)
Disease	3 (6.1)	7 (14.6)
Developmental delay	1 (2.0)	0

comparable among those who availed RBSK and those who did not and the difference was statistically "not significant" (p= 0.5333)

Among utilizers, reasons for withholding treatment were COVID 19 in 5 cases and unwillingness for surgery in 1 case. In six cases, status of beneficiaries was mentioned as 'Others'. Of these, one was a diabetic Child who having completed 18 years, was no more eligible for treatment under RBSK, three congenital deafness cases were late enrolments where no treatment was possible, one case was operated for cleft lip/palate under RBSK and was waiting for speech therapy and one case was having tongue tie not requiring treatment. A case having Deficiency as well as Disease availed service for deficiency only but didn't go to DEIC for his disease.

Table 2: Out of pocket expenditure (OOPE) in INR among utilizers and non-utilizers of RBSK

Type of charges	Expenditure (INR) for utilizer of RBSK (n=45*)		Expenditure (INR) for non-utilizer of RBSK (n=39#)		p Value
	Mean	SD	Mean	SD	
Consultation	1510.2	7645.0	9935.9	24112.1	0.029$
Surgery	1933.3	8968.1	5657.9	21058.8	0.28
Medicines & Consumables	7122.2	30670.9	32056.4	76895.1	0.049$
Investigations	3464.4	11218.4	9661.5	21027.0	0.09
Any other	1217.8	7455.2	3674.3	13268.1	0.3
Direct cost	15230.0	48943.8	60402.61	10988.8	0.016$
Transportation	3144.4	10790.3	2129.5	4392.1	0.6
Food	377.8	2241.5	117.9	493.6	(0.5
Stay	382.2	2240.5	0.0	0.0	Not Applicable
Wage Loss	3596.7	9356.7	2635.9	6217.6	0.59
Tip To Staff	11.4	75.4	0.0	0.0	Not Applicable
Any Other	50.0	316.2	0.0	0.0	Not Applicable
Indirect cost	7490.0	18562.3	8960.3	26206.7	0.77
Total OOPE	21545.1	60071.6	70198.7	124554.3	0.02$
Range	0–265000 (INR)		0 – 440000 (INR)		

*one not requiring surgery & three late enrolments excluded.

#one normal child, one child with unaware parent and one with superstitious parents and rest SAM children who didn't use any service were excluded

$ p value< 0.05 considered significant.

Among non-utilizers, 17 beneficiaries 'didn't go to any health facility/did not continue treatment'. Of which, 16 were cases of Severe Acute Malnutrition (SAM) where 9 Parents did not consider it as health issue, 3 gave a reason of wage loss if they go to CMTC, 2 parents were superstitious and 2 parents denied any referral /approach by health functionary. In one case of microcephaly, parents were unwilling for surgery due to the uncertainty of success of surgery. Among 25 who were cured or on treatment / rehabilitation, 18 took /were taking treatment from private, 6 from govt/ trust hospital while 1 case improved without any treatment. Four cases withheld treatment due to COVID. Among 'others', one was normal child wrongly detected as defect and in another child having Downs syndrome, mother was not aware about the condition and denied any referral by health functionary.

OOPE was highly variable and mean OOPE was Rs 21545 ± 60071 among RBSK users which was "significantly less" ($p<0.05$) than Rs. 70198 ± 124554 among non-utilizers (Table 2). It was more among those who didn't utilize mainly for consultation charges, surgery or investigations. But for transportation, food and stay it was higher to who were beneficiaries of RBSK services.

Discussion:

Out of 102 cases, 97 (95%) were covered with a refusal rate of 5% only. Nearly half of the cases were detected through RBSK program and other government health functionaries while nearly one third were detected by private practitioners/ Trust hospitals. It was comparable with another study from Ahmedabad where 48% cases of CHD were diagnosed through RBSK.[7]

Utilization rate for RBSK services were 50.5% in this study. A study from two districts of Chhattisgarh namely Raipur and Raigarh[5], found that among all referred cases, only 31.5% - 38.9% reached DEIC. As per a review article,[8] till Dec 2014, in all over India about 35% of referred beneficiaries availed tertiary care services. Those with defects (birth) had highest utilization rate as compared to other 3 Ds. While most of the non-utilisers were of deficiency. It can possibly be due to the fact that defect (s) most of the times are either visible or interfere in daily routine of child which lead the parents to avail services and the less OOPE involved, while deficiency disorders by many parents are not perceived as a matter of concern. A study from Pune[9] also documented that service uptake was good (up to 60%) for major anomalies like congenital heart diseases, Congenital Talipes Equino Varus (CTEV) etc while for developmental disabilities, it was around 17%. Combined uptake of RBSK services for Defect and developmental delays, in this study was found around 32%.

Among the service utilizers, there were more cases cured or on treatment or on rehabilitation than those who were the non-utilizers. It is treatment seeking behavior which also matters. Among non-utilizers, more than one third did not go to any health facility/did not continue treatment. It indicates that to increase utilization of RBSK services, counselling is must after issuing the RBSK card. Most of these reluctant parents had children with SAM and the reasons given by parents were (1) denial of health issue, (2) no referral /approach by health functionary or (3) social/ economic issues like wage loss, superstition. Similar reasons were mentioned in a study in Pune[9] for lack of treatment or lack of compliance. Among those who were cured or on treatment / rehabilitation, more than two third took /were taking treatment from private hospitals indicating the preference for private health facility. Other studies[10,11] in India on health seeking behaviour have also shown this distinct preference for private facilities.

OOPE in this study was high and highly variable and is the matter of concern. This finding relates well with preference to private providers.

Conclusion and recommendations:

Utilization of RBSK services was found 50.5%. Among users, OOPE is significantly less as compared to non-users. Among non-users, major reasons were preference for private providers and reluctance to stay at CMTC either due to ignorance about malnutrition or wage loss. Private practitioners need to be informed about services available under RBSK specially for poor, they may refer poor patients. Various professional bodies can be approached for the same. Counselling among parents regarding the need of treatment especially of deficiency disorders (SAM) and sequelae of untreated is required. Satisfied Utilizers can be motivated to act as motivator for the non-utilizers by sharing their experience with them.

Declaration:

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Conflict of Interest: One of the authors was involved with implementation of this program in the study area.

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Original Article

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A Cross Sectional Study of Proportion and Determinants of Overweight and Obesity among Undergraduate Medical Students of a City in Western Gujarat

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Abstract:

Introduction: Obesity is one of the major lifestyle disorders in India and its incidence has rapidly increased during recent decades. Medical students are more prone for obesity, due to, their sedentary lifestyle, lack of exercise, disordered eating habits, increased stress. **Objective:** To find the proportion of overweight/obesity among medical students and identify the contributing/associated factors. **Method:** A cross-sectional study was done among 435 medical students aged 18-23 years. Height and weight were measured. Body Mass Index (BMI) cut off was taken as Asian cut-off. Dietary habits like vegetarian/mix vegetarian, frequency of consumption of fast foods were assessed. Along with-it Physical activity and positive family history of obesity and overweight were also assessed. Approval was taken from the Institutional Ethics Committee. Data was analysed using Microsoft Excel and SPSS. **Results:** Proportion of overweight 14.25% and obesity 8.73% was obtained among medical students. There was statistically not significant association between proportion of generalized obesity noted in males compared to females. There is statistically significant higher chance of being overweight/obese when sedentary time is >2 hours and with increasing junk food frequency. **Conclusion:** Medical students have a high proportion of obesity and are thus more prone for obesity-related risks. The present study will help in enhancing self-awareness among the medical students for practising healthy life style.

Keywords: Body Mass Index, Medical Students, Obesity, Overweight

Introduction:

Worldwide, disease profile is transforming at a rapid pace catching the attention of medical professionals and policy makers alike. This is particularly true in low and middle-income countries that form the major chunk of global population. The emerging epidemics of obesity, cardiovascular disease and diabetes form the crux of this phenomenal change. Among these entities, obesity has become a colossal epidemic causing serious public health concern and contributes to 2.6 million deaths worldwide every year.[1]

India is witnessing a growing burden of non-communicable diseases (NCDs), and the high burden of overweight and obesity among adults poses a daunting challenge to mitigating them.[2] In India the age of onset of obesity is progressively decreasing over the past years and the young individuals are being predisposed to obesity related health problems. About 30-65 % of adult urban Indians are reported to be either overweight or obese.[3]

Proportion varies within the country because of differences in the lifestyle, mainly in the dietary patterns, and physical activity.[4] There is paucity of

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studies done on medical students for their lifestyle practices and diseases like overweight and obesity. Hence the present study was undertaken to assess overweight and obesity in undergraduate medical students and identify the determining factors.

Method:

A cross sectional study was carried out among all medical students of the concerned medical college. There is only one medical college in the city. The total intake of medical college is 250 students per year. The study was carried out in between August 2021 to December 2021 with the objectives to determine the proportion of overweight and obesity along with its associated factors in the undergraduate medical students.

The sample size was calculated using the formula $4pq/L^2$ where proportion of 11% with 80% power and 95% Confidence Interval and 5% level of Confidence Interval and absolute precision was 3%. Total sample size calculated was 435, and all 4 years students are included in equal proportion in study. Around 108 students were selected from first year and 109 students from 2^{nd} , 3^{rd} and 4^{th} year batches were selected by simple random sampling using the lottery method by using roll numbers of the students. Verbal consent was taken prior to data collection.

All students aged 18-24 were considered for the study and students who were absent during the study period were not included in the study. The data was collected using a self designed, semi structured questionnaire, which was validated by conducting pilot study among 50 medical students. Height was measured by standard stadiometer in upright position without shoes/footwear and occiput, back (scapula), hips, calf muscles along with back of foot touching the wall. The weight was measured using a standard weighing scale and was round off to nearby 100gms. Other variables like Socio-demographic profile, Physical Activity, Dietary habits and family history of obesity were taken. Physical activity in the form of routine outdoor sports like cricket, football, volleyball was considered and other routine physical activities like walking and bicycling was considered. CDC recommends 75 minutes of sports activity or 150 minutes of routine physical activities. For present study, average of both the type of activity i.e. 120 minutes per week is considered. The BMI was calculated using the formula BMI = Weight (in kg) / Height (in meter^2). BMI cut off were taken as Asian cut-off. Before conducting the study, the approval was taken from the Institutional Ethics Committee. After data collection, a lecture was taken to educate students about healthy life style adoption. Data was analysed using Microsoft Excel and SPSS version 24. Chi- square test was used for analysing the association of variables. Co- relation coefficient used for association of age with over weight and obesity. Data safety and assurance of privacy was given to the participants and access to the data was only with Principal Investigator and Co Principal Investigator.

BMI Classification for Asian Population[5] used in which classified as 1) Severely underweight: < 16.5 kg/m^2 2) Underweight: 16.5 to 18.5 kg/m^2 3) Normal: 18.5 to 23 kg/m^2 4) Overweight/Pre obese: 23 to 24.99 kg/m^2 5) Obesity: >25kg/m^2

Table 1: Comparison of Obesity/Overweight with Gender and Age

Gender	Obese n (%)	Overweight n (%)	Normal n (%)	Total n (%)
Male	19 (9.69)	29 (4.79)	148 (75.51)	196 (45.05)
Female	19 (7.94)	33 (13.80)	187 (78.24)	239 (54.95)
Total	38 (8.73)	62 (14.25)	335 (77.01)	435 (100)
Chi square value = 0.55, p Value = 0.75, Degree of Freedom = 2				
Age	**Obese** n (%)	**Overweight** n (%)	**Normal** n (%)	**Total** n (%)
18	4 (5.71)	7 (10.00)	59 (84.28)	70 (100)
19	5 (7.24)	9 (13.04)	55 (79.7)	69 (100)
20	7 (9.21)	10 (13.15)	59 (77.63)	76 (100)
21	7 (8.64)	13 (13.04)	61 (75.30)	81 (100)
22	8 (10.66)	12 (16.00)	55 (73.33)	75 (100)
23	7 (10.93)	11 (17.18)	46 (71.87)	64 (100)
Total	38 (8.73)	62 (14.25)	335 (77.01)	435 (100)
Chi square value= 4.28, p Value = 0.93; Degree of Freedom= 10				

Results:

Out of 435 students 196 (45.05) were male and 239 (54.95) were female. Among total students 9.69% male were obese and 14.79% were overweight as compared to females who were obese (7.94%) and overweight (13.80%). The total proportion of obesity was found to be 8.73% and overweight to be 14.25%. The difference was not significant between sex and obesity. (Table 1)

There is gradual increase in obesity and overweight as age increases. The chi square value calculated to be 4.28 (both obesity and overweight are calculated separately and compared with normal) and p value of 0.93 which signifies that there was no significant association of increasing age with increasing weight from 18 to 23 years.(Table 1)

Figure 1: Pearson Correlation Coefficient between Age and Obesity/Overweight

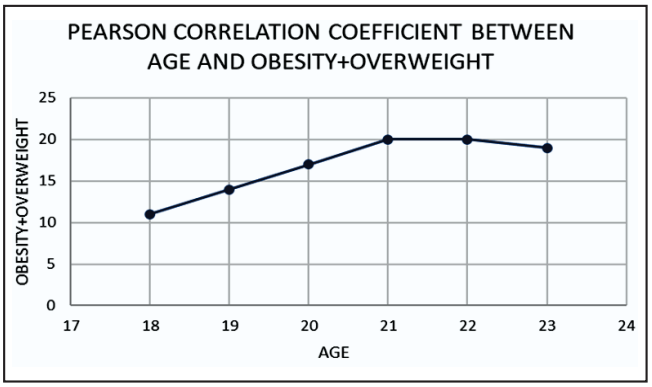

Figure 1 shows correlation between Age and Obesity/overweight. With increasing Age there was an increase in the proportion of Obesity/Overweight, the correlation Coefficient between them was 0.89 which signifies strong correlation between both variables.

The proportion of overweight and obesity was high among those students who have high sedentary time (> 2 hours) as compared to those who were having low sedentary time. There is statistically significant risk of being overweight/obese with increasing junk food frequency. (Table 2)

The proportion of overweight and obesity among mix diet was 19.18% and 13.95% respectively as compared to 11.02% and 5.32% in vegetarian diet which signifies higher chance of being obese/overweight for that consuming mix diet.

Table 2: Comparison of Obesity/Overweight with Sedentary Activity and Junk Food Frequency in a Week

Total Sedentary Time spent for Television/ Mobile/Laptop Daily	Obese n (%)	Overweight n (%)	Normal n (%)	Total n (%)
>2 Hours	16 (13.91)	25 (21.73)	74 (64.34)	115 (100)
≤2 Hours	22 (6.87)	37 (11.56)	261 (81.56)	320 (100)
Total	38 (8.73)	62 (14.25)	335 (77.01)	435 (100)
Chi square value = 14.19, p Value = 0.0008, Degree of Freedom = 2				
Junk Food Frequency Per Week	**Obese** n (%)	**Overweight** n (%)	**Normal** n (%)	**Total** n (%)
>2 Hours	28 (11.96)	45 (19.23)	161 (68.80)	234 (100)
≤2 Hours	10 (4.97)	17 (8.45)	174 (86.56)	201 (100)
Total	38 (8.73)	62 (14.25)	335 (77.01)	435 (100)
Chi square value = 19.28, p Value = 0.00006, Degree of Freedom= 2				

Table 3: Comparison of Obesity/Overweight with Diet Pattern, Total Sports Activity per Week and History of Obesity in Either Parent

Type of Diet	Obese n (%)	Overweight n (%)	Normal n (%)	Total n (%)
Vegetarian	14 (5.32)	29 (11.02)	220 (83.65)	263 (100)
Mix	24 (13.95)	33 (19.18)	115 (66.86)	172 (100)
Total	38 (8.73)	62 (14.25)	335 (77.01)	435 (100)
Chi square value= 17.53, p Value = 0.00015, Degree of Freedom= 2				
Total Sports Activity Time Per Week	**Obese** n (%)	**Overweight** n (%)	**Normal** n (%)	**Total** n (%)
≤2 Hours	7 (7.21)	13 (13.54)	80 (83.33)	96 (100)
>2 Hours	15 (4.42)	49 (14.45)	275 (81.12)	339 (100)
Total	38 (8.73)	62 (14.25)	335 (77.01)	435 (100)
Chi square value= 1.14, p Value = 0.56, Degree of Freedom= 2				

There was no statistical association between less physical activity and being overweight. Students were also inquired about the obesity among their parents. Total 19.51% obese student gave positive history of obesity in either of the parents whereas 24.39% overweight students had positive history of obesity in either parents. On applying chi square test , significant association was found between history of parents being obese and students being overweight/obese. (Table 3)

Discussion:

Both primordial prevention and primary prevention plays an important role in prevention of NCDs emergence. Being in Medical profession, medicos are considered to have higher knowledge regarding the matter and they should practice what they are preaching, however in most of the research studies[6-8] it had been found that among all the risk factors persist in medical students, there is a significant proportion of overweight and obesity among them. It was found in the current study that, the total combined proportion of overweight (14.25%) and obesity (8.73%) was 22.98%. Similar result was found in the study by Gupta et al[6] who demonstrated the proportion of combined overweight & obesity was 21% (17% and 3% respectively); Study done by Gopalakrishnan et al[7] revealed combined proportion of the same as 21% and study by Basu et al[8] revealed a pattern of combined overweight and obesity as 22% (18% overweight & 4% obese respectively).

On the contrary, the findings of this study were much lower compared with another group of studies [9-12] conducted among comparable groups. Bakr et al at Egypt[9] demonstrated as 49% (37% & 12% respectively); Gore et al[12] at Bangalore revealed the combined proportion was 41.27%;Selvaraj et al[10] at reported as 33%;Abdalla et al[11] found the pattern of overweight was 18% and obesity 9% (combined proportion was 27%); while Some studies shows lower proportion than present study; Raza et al[13] at Government Medical college, Karachi revealed that 17% were overweight and Study by Fernandez et al[14] at Pune revealed overall proportion of overweight/obesity was 13%; Chhabra et al[15] at University College of Medical Sciences, Delhi it was14%(12% & 2% respectively)

In present study, Proportion of over weight and obesity in male was 24.48% and female was 21.74% which differed from other studies [16,19] Gender is one of the biological factors affecting the weight status. Our study demonstrated that BMI was not affected by gender. However, several studies among medical students showed a significantly higher rate of overweight and obesity among males in comparison with females [6,11,13-18] on the contrary, reverse findings were also noted in other studies [19-20]

Positive family history of obesity was also observed to be related with BMI status in the present study which was consistent with prior studies [8-10,12,17,18] In present study there was no significant association between less physical activity and being overweight. While some studies, physical inactivity was significantly associated with overweight and obesity in [6,10,14,17,19,21]

Present study showed higher chance of being obese/overweight for those consuming mix diet. But this result differs from some previous studies like studies at Midnapore[6], West Bengal[8], Pune[14] and Gujarat[18] which showed no significant role of type of diet in proportion of being over weight and obese.

Present study noted that proportion of overweight& obesity was more among those who were consuming junk and fast food more frequently and the difference was statistically significant; which was in line with studies by various investigators [8,11,19-21]

Conclusion:

This study concludes that the proportion of overweight/obesity was significant among medical students. This proportion of overweight/obesity was highly associated with sedentary lifestyle though the physical activity was not statistically associated with overweight or obesity. High consumption of junk food, positive family history and who had high sedentary time showed the high proportion of overweight and obesity. Increasing age showed positive correlation for combined overweight and obesity, while gender distribution showed no association with obesity and overweight among medical students.

Declaration:

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Conflict of Interest: Nil

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Original Article

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Estimation of Elder Abuse and its Associated factors in a Rural Area of Gujarat: A community based cross sectional study

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Abstract:

Introduction: The Indian population experiencing rapid ageing. By 2050, elderly would be 19.5% of the total population. The increasing elderly in society brings with new social problems having tremendous health impact. Elder abuse is a serious but neglected social problem that has adverse consequence on health. **Objective:** To measure the prevalence of elder abuse and to determine associated factors of elder abuse. **Method:** A community based cross sectional study was conducted among elderly population aged 60 years and above in the Piparia village of Vadodara district. A sample of 126 study participants were interviewed to collect data on prevalence of abuse and associated factors leading to abuse. Descriptive and inferential statistics were applied to draw conclusion from collected data. **Results:** Prevalence of elder abuse was found to be 28.57%. Emotional abuse was the commonest type of abuse reported. Socio economic status, family type, Tobacco use (Smoke and smokeless) were found to be significantly associated with elder abuse. **Conclusion:** Elder abuse is prevalent in rural Gujarat. Further evidence is needed to assess the magnitude of the problem and the type of intervention necessary to resolve it.

Keywords: Abuse, Elder, Geriatrics, Prevalence, Risk factors, Rural

Introduction:

Currently, India is experiencing unprecedented demographic changes. Increasing life expectancy and reducing fertility resulted in a 'demographic dividend'; the result was a noticeable increase in the number of elderly aged 60 and above, both in absolute and relative terms.[1] According to the 2011 census, people aged 60 and above accounted for 8.6% of the total Indian population, numbering 103 million elderly persons.[2] By 2050, the elderly population is expected to increase to 19.5% (319 million).[3] The increasing elderly population brings another social devil to the fore. That is elder abuse; this new age social problem has significant adverse health outcomes.[4]

World health organization define Elder abuse as "It is a single or repeated act, or lack of appropriate action, occurring within any relationship where there is an expectation of trust, which causes harm or distress to an older person".[5] Elder abuse is a violation of human rights and an unconstitutional act. It includes varieties of acts like; physical, sexual, psychological and emotional abuse; financial and material abuse; abandonment; neglect; and serious loss of dignity and respect.[6]

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Elder abuse can occur anywhere like at home, in nursing homes, or in old age homes and it is done by anyone from close family members, relatives, or neighbours; there is no specific place for elder abuse. The abuse of the elderly results in serious damage to their physical and mental health. There is a serious health cost for those who suffer from it, including a greater risk of sickness, hospitalization, and even death, and a negative impact on families and society at large.[7]

Elder abuse is a worth mentioning but neglected community problem. According to Longitudinal Ageing Study in India (LASI), In 2020, nearly 5% of India's elderly population acknowledged they had been maltreated.[1] A systemic review and meta-analysis conducted by Yon Y. et al[8] in the year 2017 is eye-opening and revealed that 1 in 6 elderly subjected to some form of abuse. The pooled prevalence was 15.7% for 60 years and older population; The pooled prevalence estimate was 11.6% for psychological abuse, 6.8% for financial abuse, 4.2% for neglect, 2.6% for physical abuse, and 0.9% for sexual abuse.[8]

Understanding the magnitude of the problem of elder abuse is critical access in the public health proceeds to prevent this type of violence. But, the lack of consensus nationwide in measuring elder abuse and its subtypes (psychological, physical, sexual, and financial abuse and neglect) has resulted in extensive variations in reported prevalence rates.[9] Available data is also scarce to derive about the prevalence of elder abuse. In the consensus of the above, the primary objective of this study was to measure the prevalence of elder abuse and determine risk factors associated with elder abuse.

Method:

The present community based cross-sectional study was conducted among elderly residents aged 60 years and above in the rural area of Vadodara from July to August 2019. The study was conducted in the village of Piparia, a field practice area of the community medicine department.

The sample size was calculated through open Epi software using single population proportion formula $n = (Z_{\alpha/2^2}) * p(1-p)/d^2$ based on the following assumption: 95% confidence interval, 5% margin of error, 80% as a power of a study, and 9% as anticipated prevalence.[1] The calculated sample size is 126. Our study participants were enrolled using a random sampling method. Based on record of family survey; we listed all the elderly individuals, totalling 374 indivisuals. Out of 374 elder indivisuals, 126 participants were selected by using a random number table.

People of age above 60 years and who provided written informed consent were included as study participants; and a person who was unable to provide information (not willing/severe mentally ill) and in a condition where a personal interview was not possible, were excluded from the study.

Data were collected in pre tested questionnaire by conducting face to face interview with each participants. Data collection tools contain information about social demographic profile (age, gender, education, occupation, income, marital status, socioeconomic status, etc.) tobacco and alcohol addiction, comorbid conditions, instances of elderly abuse, and types of elderly abuse.

Study specific definition used to consider abuse:[5,6]

- Physical abuse: when an older person is injured as a result of struck, slapped or kicked, tied down or locked in a room or having touch without his/ her permission or he/she afraid of anyone at home.
- Emotional abuse: a behaviors that harm an older person's self-worth or wellbeing or when caretaker give the silent treatment or intimidate individual with punishment/deprivation or individual felt alone due to emotional reasons
- Neglect: Intentionally failing to meet older person's basic needs including eyeglasses, hearing aid, or false teeth etc., or individual left alone for a long period.
- Financial abuse: illegally misusing an older person's money or caregiver's dependence.

A questionnaire was prepared in English; translated into the Gujarati language then back-translated into English to check the consistency. Face validity of the questionnaire was carried out. We pre-tested the final version of the questionnaire among 15 Elderly who weren't part of the sample to see whether the questions were understandable, and made corrections as necessary.

The institutional ethics committee approved the study before it began. Informed consent was

obtained from all participants before enrolment in the study. Participants in the study were given counselling and health education as well as referrals to medical facilities if they needed treatment.

Data were entered and compiled into Microsoft Excel and exported to Epi-info software for analysis. Authors did data cleaning before conducting the analysis. Descriptive and inferential statistics were applied for analysis and results were presented in tables and graphs.

Results

Total 126 subjects participated in the current study; 36 participants reported elder abuse. The prevalence of elder abuse was 28.57% in all its forms. The prevalence of emotional abuse, financial abuse, neglect and physical abuse among the elderly was 13.49%, 12.70%, 10.32% and 7.14%, respectively.

Figure 1 shows that the prevalence of physical abuse was higher among elderly females (3.97%) than elderly males (3.17%). The prevalence of Emotional abuse, neglect, and financial abuse was higher among males compared to the females. 23 males and 13 females reported elder abuse. The prevalence of elder abuse was higher among males (32.39%) compared to females (23.64%). This difference was statistically non-significant. (Chi square=1.165, df=1, p value=0.28). (Table 1)

The observed difference with abuse was statistically significant for Family type and socio economic status. However, age, gender, education level, marital status, and poverty were not significantly associated with abuse. Prevalence of elder abuse was more among ≥80 years (Oldest Old), male, Widow/widower, illiterate, Socio economic class 1, below poverty line family and nuclear family. (Table 1)

Statistically significant association was observed between abuse and use of Smokeless tobacco and use of any kind of tobacco. Occupation, Smoking, financial independence, alcohol consumption, hypertension, diabetes and chronic mental illness were not found significantly associated with abuse. Prevalence of elder abuse was more among unskilled workers, financial dependence, tobacco users in both smoke and non-smoke forms, Alcohol consumer, Hypertensive, Diabetes and chronic mentally ill compared to their counterparts. (Table 2)

Discussion:

There has never been a nationally representative study of elder abuse in India. Elder abuse still remains a hidden problem in India; many cases go unreported for a variety of reasons. This is the only study to report a prevalence of elder abuse in Gujarat. According to present study, 28.57% of elders in the community experienced abuse. The prevalence of elder abuse reported in different community-based studies in different parts of India ranged from 9.31% to 24.3%.[4,9,11–13] A Study conducted in old age homes in Davangere district, Karnataka reported a prevalence of elder abuse 35.2%; which is higher than the prevalence reported in community-based studies.[14]

Figure 1: Various types of abuse among males and females

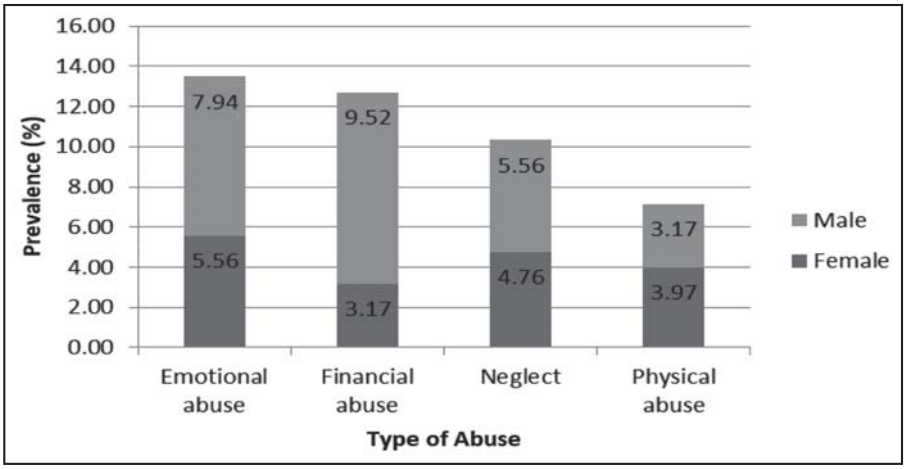

Table 1: Prevalence of abuse according to Socio-demographic Characteristics (n=126)

Socio-demographic characteristic		Abuse		Total (*n*=126)	*p* value
		Present (*n*=36)	Absent (*n*=90)		
Age Group (in years)	60-69 (Young Old)	25 (28.09%)	64 (71.91%)	89 (70.63%)	0.929
	70-79 (Old Old)	7 (28%)	18 (72%)	25 (19.84%)	
	≥80 (Oldest Old)	4 (33.33%)	8 (66.67%)	12 (9.52%)	
Gender	Male	23 (32.39%)	48 (67.61%)	71 (56.35%)	0.280
	Female	13 (23.64%)	42 (76.36%)	55 (43.65%)	
Education	Illiterate	13 (32.5%)	27 (67.5%)	40 (31.75%)	0.649
	Primary	11 (27.5%)	29 (72.5%)	40 (31.75%)	
	High school	7 (20.59%)	27 (79.41%)	34 (26.98%)	
	Graduate	4 (40%)	6 (60%)	10 (7.94%)	
	Post Graduate	1 (50%)	1 (50%)	2 (1.59%)	
Marital status	Currently Married	23 (24.47%)	71 (75.53%)	94 (74.6%)	0.057
	Unmarried	0 (0%)	3 (100%)	3 (2.38%)	
	Widow/Widower	13 (44.83%)	16 (55.17%)	29 (23.02%)	
Socioeconomic class**	Upper class	6 (60%)	4 (40%)	10 (7.94%)	0.009*
	Upper middle class	6 (18.75%)	26 (81.25%)	32 (25.4%)	
	Middle class	5 (14.29%)	30 (85.71%)	35 (27.78%)	
	Lower middle class	10 (33.33%)	20 (66.67%)	30 (23.81%)	
	Lower class	9 (47.37%)	10 (52.63%)	19 (15.08%)	
Poverty of family	Above Poverty Line	31 (27.68%)	81 (72.32%)	112 (88.89%)	0.530
	Below Poverty Line	5 (35.71%)	9 (64.29%)	14 (11.11%)	
Type of family	Nuclear	17 (47.22%)	19 (52.78%)	36 (28.57%)	0.011*
	Joint	6 (17.14%)	29 (82.86%)	35 (27.78%)	
	Extended	13 (23.64%)	42 (76.36%)	55 (43.65%)	

* Statistically Significant, ** Modified prasad classification[10]

This study reported that older people are at higher risk of abuse. Similar results were reported in various studies. [4,9,12–14] A study conducted here found that males suffered from more abuse than females, although the difference was not statistically significant. The findings were inconsistent with those of other studies; more abuse was reported among females than males in different studies. The difference might be due to different social norms in difference parts. [4,9,11–15]

Elder abuse is associated to a combination of personal, familial, economic, and psychological factors that the elderly are being ill-treated at an increasing rate. Rapid changes in the socioeconomic environment in India are causing the traditional family system to break down, resulting in changes in living arrangements and social structures that weaken the elderly's social support system.[1]

Elderly people residing in nuclear families report higher levels of abuse, while those residing in joint families report the lowest levels. Our findings are consistent with studies conducted by Sridevi H.N et al

Table 2: Prevalence of abuse according to certain variable (*n*=126)

Variable		Abuse		Total (*n*=126)	*p* value
		Present (*n*=36)	Absent (*n*=90)		
Occupation	Unemployment	2 (18.18%)	9 (81.82%)	11 (8.73%)	0.457
	Unskilled Work	4 (44.44%)	5 (55.56%)	9 (7.14%)	
	Semiskilled	3 (50%)	3 (50%)	6 (4.76%)	
	Skilled Worker	3 (27.27%)	8 (72.73%)	11 (8.73%)	
	Shopkeeper / Vendor	7 (23.33%)	23 (76.67%)	30 (23.81%)	
	Professional	7 (41.18%)	10 (58.82%)	17 (13.50%)	
	Housewife	10 (23.81%)	32 (76.19%)	42 (33.33%)	
Financially independent	Yes	3 (18.75%)	13 (81.25%)	16 (12.7%)	0.352
	No	33 (30%)	77 (70%)	110 (87.3%)	
Current Smoker	Yes	10 (35.71%)	18 (64.29%)	28 (22.22%)	0.343
	No	26 (26.53%)	72 (73.47%)	98 (77.78%)	
Smokeless Tobacco User	Yes	15 (60%)	10 (40%)	25 (19.84%)	<0.0001*
	No	21 (20.79%)	80 (79.21%)	101 (80.16%)	
Any Form of Tobacco Consumer	Yes	18 (45%)	22 (55%)	40 (31.75%)	0.005*
	No	18 (20.93%)	68 (79.07%)	86 (68.25%)	
Alcohol Consumption	Yes	8 (40%)	12 (60%)	20 (15.87%)	0.217
	No	28 (26.42%)	78 (73.58%)	106 (84.13%)	
Hypertension	Yes	16 (36.36%)	28 (63.64%)	44 (34.92%)	0.156
	No	20 (24.39%)	62 (75.61%)	82 (65.08%)	
Diabetes	Yes	12 (31.58%)	26 (68.42%)	38 (30.16%)	0.623
	No	24 (27.27%)	64 (72.73%)	88 (69.84%)	
Chronic Mental Illness	Yes	1 (100%)	0 (0%)	1 (0.79%)	0.112
	No	35 (28%)	90 (72%)	125 (99.21%)	

* Statistically significant

and Kaur J. et al. [13,15] The joint family system that exists in traditional Indian society acts as a protective barrier against elder abuse. Those who are illiterate experienced more abuse than the literate in our study. Skirbekk V. et al. find that education consistently lowers elderly abuse.[16] The prevention of elder abuse is achieved by a continuous increase in literacy. The study found that elder abuse took place more frequently among widows and widowers; similar findings have been reported by Mawar S. et al[4], Kumar P. et al[12], and Achappa S. et[14] al in their studies.

This study also found that elders from lower and lower middle socioeconomic classes experienced more abuse than those from higher socioeconomic classes. Elderly belonged to poor families were more likely to be abused. Other studies reported a higher rate of elder abuse among lower socio economic class families.[9,12] Financial struggle in the family may be a contributing factor.

It was found that those elderly; who were financial independent were less abused. Studies reported that having some form of financial income or pension provided protection against abuse. People who are financially independent or have some type of source of income reported less abuse.[4,12]

It was observed that Tobacco users, either in smoke or smokeless form and alcoholic have a higher rate of elder abuse. A similar result was also reported by Mawar S. et al in their study.[4]

Similar to other studies, we also found that chronic diseases (Diabetes, Hypertension and mental disorders) were associated with elder abuse; however, the association was statistically not significant. Being healthy offers protection from elder abuse since chronic diseases increase the risk of dependence.[4,15]

Conclusion:

Finding of this study reported that elder abuse is prevalent in different form in rural part of Gujarat. The most common type of abuse, elders suffer was emotional abuse. Literacy, Joint family and financial independence was found to be protective against elder abuse. Lower socioeconomic class, poverty, higher age, female gender, widow/widower status, use of tobacco and alcohol, and chronic ailments were significantly associated with elder abuse.

Limitation of Study:

Althoght the prevalence of elder abuse was measured, severity of abuse was not estimated in this study. Study participants belonged to village near to Vadodara so, it is difficult to completely generalize the result to whole Gujarat. The study being cross-sectional in nature does not identify the causal risk factors of elder abuse.

Declaration:

Funding: Nil

Conflict of Interest: Nil

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Epidemiological and Clinical Profile of COVID-19 cases attending Rural Health Training Centre of one of the Medical Colleges of Ahmedabad, Gujarat, India

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Abstract:

Introduction : Understanding the epidemiological and clinical profile of COVID-19 cases and pattern of disease is very much required for future preparedness. **Objective :** To assess the epidemiological and clinical profile of cases of COVID 19 **Method :** Cross sectional descriptive study was carried out at a Rural Health Training Centre (RHTC). All cases reported in the month of January 2022 were included in the study. The information about the epidemiological and clinical profile was collected from RHTC records by conducting telephonic interview. **Results :** Total 83 cases were reported. Among them, 43 (54.4%) cases were in age group 20-39 years. Male: Female ratio was 1.37:1. There was one death and patient had ovarian cancer as co-morbidity. Total 71 patients could be contacted for telephonic interview. Fever was most common symptom and was presenting symptom on first day followed by cough/cold and sore throat. None had shortness of breath or chest pain. Hospitalization rate was 5.63% and none required oxygen supplementation or intensive care. Recovery period was 3-5 days. Out of total, 90% cases were fully vaccinated and 95.8% had knowledge of CAB. Diabetes and hypertension were most common co-morbidities and were statistically significantly more in age > 40 years. **Conclusions :** The COVID-19 cases in the beginning of year 2022 had clinical presentation different than the earlier waves. Periodic situational analysis can guide in policy making for handling this pandemic in future.

Keywords: COVID-19, Co-morbidities, COVID vaccination, Surveillance, COVID Appropriate Behaviour (CAB)

Introduction:

An outbreak caused by a novel coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was reported in Wuhan, China in late December 2019.[1] COVID-19 was declared as pandemic by WHO on 11 March 2020.[2,3]The COVID-19 pandemic has risen to a global health crisis across the globe. This novel virus outbreak has challenged India's economic, medical and public health infrastructure. The Ministry of Health and Family Welfare of India (MOHFW) has taken numerous measures to raise awareness on COVID-19 and the necessary actions to control the spread of the virus. The central and state governments are formulating several wartime protocols to achieve this goal. The MOHFW has implemented and updated the clinical management and testing protocol for COVID-19 from time to time. Besides, the Ministry of AYUSH has also provided guidelines to use conventional preventive and treatment strategies to enhance immunity.

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Since, there is no specific drug effective against COVID-19 infection, exploring every possible option for prevention and treatment is of great importance.Further, the clinical presentation and outcomes of patients with COVID-19 have been variable in different countries during the earlier waves of disease. [2-9] Also the clinical presentations have been different during the different waves of the disease during this pandemic. COVID vaccination was also introduced from 16 January 2021 in India and by now it has been received by large proportion of the population of our country. The disease had now its presence in rural areas also unlike the earlier waves when the cases were to large extent, restricted to urban areas.

In view of all the above facts, the present study was carried out to study the epidemiological and clinical profile of COVID -19 cases reported at RHTC during the month of January 2022, the same can be taken as a prototype for presentation of COVID in rural Gujarat.

Method:

The descriptive cross-sectional study was carried out at Primary Health Centre, Jetalpur which is the Rural Health Training Centre (RHTC) affiliated to AMC MET Medical college, Ahmedabad. The population of PHC is 44,206 and during the month of January 2022, 8636 Rapid Antigen Test (RAT) and 12,541 RTPCR tests were conducted in the RHTC areas as a part of surveillance activities. The test positivity rate was 0%. All the cases which were reported from the RHTC were tested positive at government and private laboratories located in Ahmedabad city and other peri-urban areas which are in close proximity of the RHTC. All cases reported during the month of January 2022 were included in the present study. The information about the socio-demographic profile, symptoms, secondary cases, duration of disease, COVID vaccination, environment at home, treatment received,prognosis, co-morbidities and knowledge about CAB was collected. Information was collected from the records and additional information from the patient regarding the present COVID episode was collected by telephonic interview using a pre-designed and pre-tested proforma. Pilot study was carried out amongst 10 patients and thereafter the data collection was started. The data so collected were analysed using Microsoft excel, t test and z test were applied to test the significance.

Results :

Total 83 cases were reported from the RHTC area during the month of January 2022. The age wise distribution of cases showed that maximum i.e. 43 (54.4%) cases were from the age group 20-39 years. Male: Female ratio of cases was 1.37:1. However mean age of cases was 37.94$\pm$17.48 years. Mean age of males was 37.4$\pm$16.3 years and mean age of females was38.69$\pm$19.18 years. There was no significant difference in gender wise age profile of cases (t=0.185, p=0.8535)(Table1)

Telephonic interview of patients was carried out in order to obtain the information as per the proforma. Alternate telephone numbers were obtained through FHWs and ASHAs where the telephone number provided was not contactable. 71 out of 83 i.e. 85.54% patients could be contacted and detailed information could be obtained from them. There was one death out of total 83 cases giving CFR of 1.4%. She was a 43 years old female who was a ovarian cancer patient on chemotherapy.

Total 45 (63.3%) cases suffered from fever of varying intensity and it was the most common symptom during the illness followed by sore throat which was present amongst 41 (57.7%) cases. Third most common symptom was cough and cold which was present in 37 (52.11%) cases. However 28 (39.43%) cases had malaise and one patient had dizziness. None of the cases had shortness of breath and chest pain throughout the illness. Information about chronology of appearance of symptoms was obtained from all the cases. Fever was presenting symptom on first day amongst 28(39.4%) patients followed by cough and cold which was the first symptom to appear amongst 22 (31%) of cases. Sore throat was first symptom amongst 15 (21.1%) cases and malaise in 11 (15.5%) cases. (Figure1)

Around 67 (94.36%) patients received treatment and had taken medicines prescribed to them. Only 4 (5.63%) cases needed hospitalization during their illness and none of them required oxygen administration throughout the illness. The

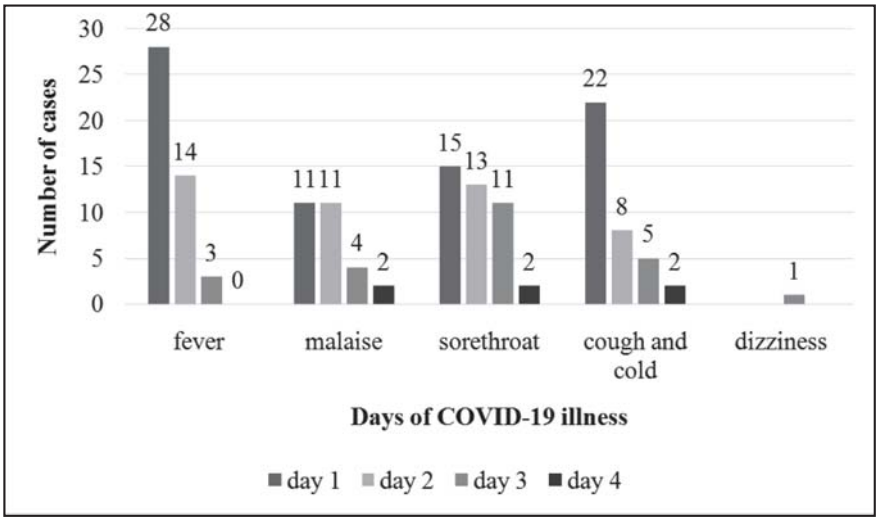
Table1: Age and Gender wise distribution of COVID -19 cases (N=83)

Variables	n (%)
Age (Years)	
0-9	4 (4.8)
10-19	3 (3.6)
20-29	21(25.4)
30-39	24 (29)
40-49	10 (12)
50-59	8 (9.6)
60-69	10 (12)
70-79	2 (2.4)
>80	1 (1.2)
Gender	
Male	48 (57.84)
Female	35 (42.16)

Table2: Details of treatment and prognosis of COVID cases

Variables	n (%)
Treatment received	
Yes	68 (95.78)
No	3 (4.22)
Hospitalization	
Yes	5 (7.05)
No	66 (92.95)
Oxygen administration required	
Yes	0 (0)
No	71 (100)
Recovery period (days)	
0-2	12 (16.90)
3-5	40 (56.34)
6-8	15 (21.13)
>8days	4 (5.63)

Figure 1 : Chronology of Appearance of Symptoms among the cases of COVID 19



duration of illness was from 3-5 days in 40 (56.33%) patients. In 4 (5.63%) cases the duration of illness was more than 8 days. (Table2)

Total 8.5% cases had travel history, 36.6% had history of contact with positive case and 17% had history of attending social gathering in last 14 days which is the maximum incubation period of the disease. Four cases (5.6%) had history of COVID during the first/ second wave of the disease whereas 21 (30%) had history of COVID in the family member of the same household during the first/ second wave of the disease. 64(90%) of the cases were vaccinated and had received one dose of vaccine. 62 (87.3%) had received two doses of vaccine. Knowledge of the CAB was assessed amongst all cases and it was observed that 68 (95.8%) had knowledge that hand hygiene, wearing of mask and social distancing of two meters can prevent COVID. The average number of secondary cases was 0.50$\pm$1.18 cases. (Table3)

Table 3 : Details about the contact, vaccination and COVID Appropriate Behaviour

Variables	n (%)
Travel history	
Yes	6 (8.5)
No	65 (91.5)
Contact with positive case	
Yes	26 (36.6)
No	45 (63.4)
History of attending any social gathering	
Yes	12 (17)
No	59 (83)
Past history of COVID	
Yes	4 (5.6)
No	67 (94.4)
History of COVID in family member of same household	
Yes	21 (30)
No	50 (70)
COVID Vaccination	
No	7 (10)
Yes	64 (90)
Number of Doses of Vaccine	
First dose	64 (90)
Second dose	62 (87.3)
Precaution dose	0 (0)
Number of secondary cases following this case	
0	57 (80.3)
1	3 (4.2)
2	6 (8.5)
3	0 (0)
4	4 (5.6)
5	1 (1.4)
Knowledge of CAB	
Yes	68 (95.8)
No	3 (4.2)

Overall, 18 (21.68%) cases had either diabetes or hypertension or both or other conditions as co-morbidities. The proportion of the cases with co-morbidities was higher in age group 40 years and above. Difference in proportion of co-morbidities between age group less than 40 years and more than 40 years was statistically highly significant (z=2.9056, p=0.0036) with more number of cases of diabetes and hypertension in the age group above 40 years. However, when the overall proportion of co-morbidities was compared with co-morbidities in each age group, the difference was statistically not significant.

Table 4: Age and gender wise co-morbidities

Variable	Diabetes	Hypertension	Diabetes and Hypertension	Others	Total	Z Value	P Value
Age (Years)							
0-20 (n=7)	0	0	0	1	1 (14.2)	0.4608	0.6455
21-39 (n=45)	1	4	1	1	5 (11.1)	1.488	0.1362
40-59 (n=18)	4	4	2	1	7 (38.8)	1.533	0.1260
>=60 (n=13)	2	3	1	1	5 (38.4)	1.3176	0.1868
Gender							
Male (n=48)	1	4	0	0	5 (10.4)	1.6336	0.1031
Female (n=35)	6	7	4	4	13 (37.1)	1.7425	0.0818

Proportion of co-morbidities was 10.4% and 37.1% in males and females respectively, and was more in females. Difference in gender wise distribution of co-morbidities was statistically significant (z =2.9177, p=0.0035). When the overall proportion of co-morbidities was compared with gender wise co-morbidities, the difference was statistically not significant.

As far as other co-morbidities are concerned, one patient in age below 20 years was suffering from TB meningitis, one patient in age group 20-39 years had dyslipidaemia. One patient in age 40-59 years had cancer and one patient in age more than 60 years had cardiac ailment. All the co-morbidities other than diabetes and hypertension were present in females. (Table 4)

Discussion:

The present study was carried out to study the profile, symptomatology, treatment needs and prognosis of patients of COVID-19 during third wave

of the pandemic at a RHTC of Gujarat. The incidence of the disease during the current wave was calculated as 1.8 cases /1000 population. The test positivity rate of the surveillance activities at the PHC was 0% however all the cases were diagnoses at the laboratories located in nearby urban areas. Such observation can be the common pattern in the rural areas which are located very close to the urban areas. Maximum number of cases belonged to age group 20-40 years with mean age of 37.94±17.48 years. However there are no study data available for age profile of cases during third wave for comparison but study by Mohan et al reported mean age of 40.1±13.1 years during the initial wave of COVID-19. [10] Another study by Kayina et al reported mean age of 50.7±15.1 years. [11] In the present study 57.3% of the cases were males. In study by Kayina et al 68.1% cases were males whereas in study by Mohan et al males were 93.1%. [10, 11] Median age of cases was 54.5 years and 59.3% were males in a study by Agrawal et al. [12] In another study by Bhandari et al 66.66% cases were males.[13]

In the present study 63.3% cases suffered from fever of varying intensity and it was the most common symptom. In study by Kayina et al 68.1 suffered from fever, in study by Agrawal et al 68% had fever whereas in study by Mohan et al fever was present only in 17.4% cases. [10-12] Fever was the most common symptom followed by sore throat, cough /cold and malaise in the present study. None of the patient had shortness of breath and chest pain during the current wave of COVID-19. In study by Kayina during the earlier wave of COVID-19, shortness of breath was the most common presenting symptom.[11] Similarly in study by Agrawal et al 75% patients were categorized as having pneumonia at the time of admission during the earlier wave. [12] Cough was reported as most common symptom in study by Bhandari et al and Geehan et al. [13-14] Fever was most common presenting symptom on first day of illness as reported in the present study followed by cough/cold, sore throat and malaise as a presenting symptom on very first day of start of the disease.

Rate of hospitalization was 5.63% and none of the patient required oxygen administration during the stay in hospital in the present study indicating that the disease was restricted to upper respiratory tract and pulmonary functions were not compromised in the patients. Duration of illness in present study was 3-5 days in majority of cases. This was similar to the duration observed by other studies. [10,11] Contact history with positive case was present in 36.6% cases in present study. 90% cases had received at least single dose of COVID vaccine and 87.3% were fully vaccinated. Average number of secondary cases was 0.5 cases amongst the close contacts who got clinically evident infection. 19.71% cases had diabetes, hypertension or both conditions as co-morbidities. 5.63% cases had other co-morbidities in the present study. 14.28% cases had co-morbidities in a study by Sudhir Bhandari et al.[13] Diabetes and hypertension were the most common co-morbidities as observed in other studies. [11,12,14]

There was a single death of COVID positive patient during the current wave and that was of a 43 years old female ovarian cancer patient who was on chemotherapy. The CFR was 1.4% in the present study. The knowledge of CAB was good amongst all patients. This was similar to findings of other study. [15]

Conclusions and Recommendations:

The COVID cases in beginning of year 2022 had clinical presentation different than the earlier waves as fever, cough/cold and sore throat being the main presenting symptoms. The rate of hospitalization was low and none required oxygen therapy or intensive care during their stay in hospital. This can be attributed to high rate of vaccination and good knowledge of CAB amongst the cases. There is need for sustaining the same. The proportion of cases with co-morbidities was significantly higher in age group more than 40 years and the single death which occurred in the PHC area was also having cancer as co-morbid condition. In view of this there is need to control of co-morbid conditions by regular treatment and follow-up amongst the general population. The

present study which was carried out in the population of PHC can be taken as prototype of the disease pattern in the rural areas of Gujarat during the beginning of year 2022 during the current wave of pandemic. Also, the active surveillance data may not be truly indicative of the disease situation in the rural areas having geographical proximity to nearby urban areas where the patients may go for testing and receiving the health services. In view of this role of ASHA and FHW of the PHC in keeping a close watch of the disease situation in the area covered by them is very important to know the actual disease situation. Further, periodic assessment of the situation and pattern of the disease can guide in making policy for handling this pandemic in near future.

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Knowledge, Attitude & Practices related to Epilepsy among Parents of Epileptic Children attending Tertiary Care Hospitals in Ahmedabad city, Gujarat

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Abstract:

Introduction: Epilepsy is one of the most common pediatric neurological disorders and is a brain condition that causes a child to have seizure. Misconceptions and poor understanding about the nature of epilepsy contribute to the burden of disease and lead to stigma. Misconceptions and negative attitudes cause people with epilepsy to feel shame, embarrassment, and disgrace. **Objective:** The purpose of this study was to assess the knowledge, attitude, and practices (KAP) related to Epilepsy amongst the parents of epileptic children. **Method:** A cross-sectional study was conducted 187 parents of epileptic child who attended outpatient department of selected hospitals of Ahmedabad. A structured interview of the parents of epileptic children was conducted using modified international questionnaires. Modified Bloom's cut-off points were used to determine KAP levels. Kruskal–Wallis test was applied on knowledge, attitude and practice levels. Chi square test was used to find out association. **Results:** The study showed that out of 187 respondents, around 61% were from age group 31 to 40 years and 54.5% were females. Among all participants, 53.5% had Good knowledge, 84.5% of parents had good attitude. Around 18.2% parents had good practices and about 9.1% had poor practices related to epilepsy. There were statistically significant associations between knowledge, attitude, and practice score with respect to gender, age, and occupation. **Conclusion:** Parents knowledge regarding epilepsy was good as more than half of parents were having good knowledge. Majority of the parents had good attitude towards epilepsy. There was significant positive correlation between knowledge and practices about epilepsy. Attitudes and practices related to epilepsy also showed positive correlation.

Key Words : Attitude, Caregiver, Epilepsy, Knowledge, Practice

Introduction:

Epilepsy is a Paroxysmal event due to hyper synchronous CNS discharges. It is one of the most common pediatric neurological disorders. It is a brain condition that causes a child to have seizures. Status epileptics is occurs either from the failure of the mechanisms responsible for seizure termination or from the initiation of mechanisms, which lead to abnormally, prolonged seizures (after time point t1). It is a condition, which can have long-term consequences (after time point t2), including neuronal death, neuronal injury, and alteration of neuronal networks, depending on the type and duration of seizures.[1] Epilepsy is one of the most common neurological diseases worldwide, affecting around 50 million people of all ages around the world.[2] It is estimated that there are more than 10 million persons with epilepsy (PWE) in India. Its prevalence is about 1% in our population.[3] The prevalence is higher in the rural (1.9%) compared to urban population (0.6%).[4,5] The risk of premature death in people with epilepsy is up to three times that

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of the general population.[2] The lives of people with epilepsy are often impacted by stigma, discrimination, and human rights violations.[2] Around 10.5 million children worldwide are estimated to have active epilepsy.[6] Parent's knowledge in relation to childhood seizures was not adequate as more than half of parents were having average and below average knowledge.[7] One study shows that Although most parents (70%) felt informed about epilepsy and recognized various treatment modalities, many believed that epilepsy is a mental disorder (48%), correlates with evil (44%), and affects the child's intelligence (38%).[8]

The word epilepsy word has originated from the Greek word epilambanein, meaning "to seize." This term came to embody the disease as early descriptions characterized seizures as events in which the faculties of the mind and body were "seized" from the individual. [9] Stigma can delay appropriate health care seeking, access to care, health financing and availability of treatment[2]. To reduce stigma, funds need to be directed toward epilepsy awareness and a multi-sectoral public health response needs to include interventions that improve the knowledge of individuals and their families.[2] A key element of managing these patients is adequate education and awareness of their parents. Overall, parent's attitude towards child with epilepsy is influenced by the degree of knowledge of the condition. Considering this background a study was conducted with an objective to assess the knowledge, attitude, and practices related to Epilepsy amongst the parents of epileptic children.

Method:

A cross-sectional study was conducted among Parents of paediatric age group outpatients suffering from Epilepsy at GCS Hospital and Royal Institute of Child Neuroscience (RICN) Clinic in Ahmedabad, from May 2019 to February 2020. All parents of epileptic children were included who visited clinics during study duration. Total 187 parents have participated in the study. Consent from all the parents whose children were below 18 years were taken before conducting the interview. Questionnaire consist of knowledge, attitude and practise about epilepsy among study population.

A study questionnaire used was modified from international questionnaires, which included questions regarding type of disease, nature of disease, first aid used in case of emergency, treatment of disease etc. [10] The data were entered manually in Microsoft Excel after taking face to face interview and converted to code format and transferred to Statistical Package for Social Sciences Version 28 software. Positive/ correct responses were scored as 1 to 3 as per the importance of question and the negative/incorrect responses was given the score of

Table 1: Demographic Characteristics of the Parents of epileptic children (n=187)

Variables	n (%)
Age (Years)	
22 - 30	47 (25.1%)
31 - 40	114 (61.0%)
41 - 56	26 (13.9%)
Gender	
Female	102 (54.5%)
Male	85 (45.5%)
Education level	
Graduate	47 (25.1%)
Higher secondary	43 (23.0%)
Primary and Secondary	94 (50.3%)
illiterate	3 (1.6%)
Occupation	
Homemaker	89 (47.6%)
Service	55 (29.4 %)
Business	16 (8.6%)
Farmer	16(8.6%)
Labourer	11(5.9%)

0. Modified Bloom's cut off points were used, where a score of 80-100% of correct responses meant good knowledge, a score of 50-79% was a level of medium level knowledge and a poor knowledge was for the respondents with a score less than 50% of the correct responses.[11,12] The scores included; (a) 0 –7 as "Poor" (low level) knowledge (b) 8–11 as "Moderate" (medium level) knowledge and (c) 12–15 as "Good" (high level) knowledge. Attitude scoring was done as (a) 0–9 as Poor attitude (b) 10–15 as Moderate attitude and (c)16–20 as Good attitude. The practice scoring was done as (a) 0–13 as Poor practice (b) 14–22 as Moderate practice and (c) 23– 28 as Good practice. The Kruskal–Wallis test was applied to find correlation between knowledge, attitude and practice levels. Chi-square ($\chi 2$) test was used to find out the association between parent's demographics (gender, age, highest completed education level and occupation) and different levels of KAP of parents towards epilepsy.

Results:

Majority (61.0%) of the parents were from 31 - 40 years. age group and lowest (13.9%) from 41 - 56 yrs. of age group. The Median age of the parents is 35 yrs. More than half of the parents, 54.5% were females and remaining were males. About half of the parents (50.3%, n=94) had primary and secondary school education and only 1.1% were illiterate. Among the occupations of parents, majority (47.6%) of parents were homemaker, followed by 25.7% had occupation in service field. (Table 1)

Majority of children were in the age group 0-5 yrs (33%), less than one tenth (8%) of children were belonged to age group of 16-18 yrs. More than 28 % of children had onset of epilepsy at the age of 2 to 6 years. More than half (53%) of children had uncontrolled seizure. Most of them (85%) had no family history of seizures. Almost three forth (74%) had a normal development. Most of them (84%) had a normal birth weight. (Table 2)

Table 2: Demographic and other Characteristics of Children having epilepsy (n=187)

Variables	n (%)
Age of Child (in years)	
0 - 5	62 (33%)
06-10	58 (31%)
11-15	52 (28%)
16 - 18	15 (8%)
Age of onset of epilepsy	
At birth- 5 days after birth	27 (14%)
>5 days- 6 months	30 (16%)
>6 months - 2 yrs.	38 (20%)
> 2-6 yrs.	52 (28%)
>6-16 yrs.	40 (21%)
Seizure Control	
Controlled	88 (47%)
Uncontrolled	99 (53%)
History of Seizure in Family	
None	158 (85%)
Seizure history present	29 (15%)
• First-degree relative	11 (38%)
• Second-degree relative	12 (41%)
• Third-degree relative	6 (21%)
Development of Child	
Normal	138 (74%)
Delayed	47 (25%)
history of Initial Delay	2 (1%)
Type of Delivery	
Normal delivery	127 (67.9%)
Caesarean section	57 (30.5%)
Forceps assisted delivery	2 (1.1%)
Vacuum-assisted delivery	1 (0.5%)
Birth Weight	
Normal	160 (85.5%)
Low Birth Weight	26 (14%)
Very Low Birth Weight	1(0.5%)

Table 3 : Categorical Distribution of Knowledge, Attitude and Practice among Parents (n=187)

Variables		n (%)	Mean Score	Standard Deviation
Knowledge	Good	100 (53.5)	12.63	0.747
	Moderate	83 (44.4)	10.04	1.029
	Poor	4 (2.1)	6.5	0.577
Attitude	Good	158 (84.5)	18.55	1.314
	Moderate	26 (13.9)	13.12	1.608
	Poor	3 (1.6)	7	1.732
Practice	Good	34 (18.2)	25.18	1.732
	Moderate	136 (72.7)	18.8	2.558
	Poor	17 (9.1)	11	1.061

Table 4: Comparison between the mean ranks of different variables

Variables		Mean Rank	Kruskal Wallis H Statistics (p value)
Knowledge	Good	137	146.60 (0.00)
	Moderate	45.5	
	Poor	2.5	
Attitude	Good	108	76.01 (0.00)
	Moderate	16.5	
	Poor	2	
Practice	Good	170	114.43 (0.00)
	Moderate	85	
	Poor	9	

More than half (53.5%) of parents had Good knowledge about epilepsy and most of them had (84.5%) good attitude, but when it came to assessing the practices only one fifth (18.2%) parents had good practices. (Table 3)

As shown in table 4, there is a significant difference between good, moderate, and poor Knowledge, attitude and practice of parents. There was statistically significant correlation between knowledge–practices (r=0.155, p=0.034) and attitudes–practices (r=0.165, p=0.024), whereas there was an insignificant p-value with no correlation between knowledge–attitudes (r=0.087, p=0.235). Associating parents' KAP scores on epilepsy to their demographics using the chi-square test, significant associations were found between knowledge score and gender, age as well as occupation.

Discussion:

Research studies addressing knowledge, attitude and practice amongst parents of children suffering from epilepsy are limited. The current study was planned with the intention to address the gap in knowledge on the current subject. Many of the studies conducted in India are on normal healthy individuals or school/medical college students.[18, 19] The results of present study are not strictly comparable because the population studied, and the questionnaires and methods used were different from other studies.[3]

In the present study, majority of parents' as participants were in age group of 31-40 years, female, had primary to secondary level of education and were homemaker by occupation. Median age of parents in present study was 35 years while a study performed in Ethiopia[13] had mean age of parents as 33 $\pm$ 11.3 years. Children affected due to epilepsy were more common in age group of 0-10 years. In more than half of the children affected by epilepsy, age of onset was 6 months and above. Almost more than half had uncontrolled seizure. In the present study, around a little more than half of the parents had Good knowledge and a majority of parents had good attitude but very few around 1/5th had good practices and around 1/10th of parents had poor practices. Poor knowledge may be the possible reason for poor practice in the participants of the current study. However with good attitude found amongst participants towards disease, educating them can help improve knowledge as well as practice amongst the participants. At the end of interview Health education regarding correct KAP related to epilepsy were given to the parents wherever needed.

In present study, 53.5% participants had good knowledge about epilepsy, while a study conducted in Ethiopia[13] had 73% participants with good knowledge which was higher compared to results of current study. In present study, good attitude towards the disease was found amongst 84.5%

participants, while in the study conducted at Ethiopia,[13] less favourable attitude (51.6% with unfavourable attitude) was found. Possible reasons for the difference in results of the compared studies may be the different study settings and study population.

In current study the results were relatively better than other studies, but improvements need to be done in the knowledge and practices of the parents regarding epilepsy. The education level of parents had a significant association with Attitude and practices whereas occupation had a significant association with knowledge, attitude, and practices.

Limitations:

The study was based in a hospital and so the findings may be influenced by characteristics of parents who are more likely to go to a tertiary care hospital for the treatment of the child's epilepsy.

Conclusion:

In current study, Parents knowledge regarding epilepsy was good as more than half of parents were having good knowledge. Majority of the Parents had good attitude towards epilepsy. There was significant positive correlation between knowledge and practices and attitudes and practices.

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Prevalence of Depression among the Patients with Type 2 Diabetes Mellitus Attending the Urban Health Training Centre, Thirumazhisai, Tamilnadu

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Abstract:

Introduction: Depression is the more common mental health condition found among the chronic diseases. The prevalence of both diabetes and depression are rapidly increasing and the presence of depression in patients with type 2 diabetes could hinder the adherence and effectiveness of treatment. **Objective:** This study aimed to estimate the prevalence of depression and to identify the factors influencing depression among patients with type 2 diabetes mellitus in Non Communicable Disease(NCD) clinic. **Method:** A cross – sectional study was conducted among Type 2 diabetes mellitus attending the NCD clinic of the urban health training centre between January and April 2021. Demographic, clinical and diabetes related information was collected through a semi – structured questionnaire. Level of depression was assessed using a standard questionnaire (PHQ – 9 questionnaire). The total score of 5 – 9, 10 – 14 and >15 were graded as mild, moderate and severe forms of depression respectively. Data analysis was done using SPSS software version 21. **Results:** The mean age of the study subjects was 53$\pm$7 yrs and majority (60%) were males. The prevalence of depression was 30.8 % and among them 71.7 % had mild depression while 12.8 % had severe form of depression. Factors such as female gender, higher educational status and substance use such as alcohol and smoking were found to be significantly associated with the presence of depression. **Conclusion:** It is imperative to screen for depression and lay emphasis on counseling services for the effective management of diabetes thereby improve the quality of their life.

Key Words : Depression, Prevalence, Type 2 Diabetes mellitus

Introduction:

Depression is most common mental disorder affecting 5% of the adults globally and it is the leading cause of disability worldwide.[1] It is characterized by sadness, loss of interest in work, self guilt , difficulty in sleep, decreased sleep and lack of concentration. It is difficult to cope up with daily activities in depression and can lead to suicide in its severe form[2] Keeping in view of its prevalence, morbidity and the economic burden, depression is a major disorder of public health importance. [3]

Diabetes mellitus is characterized by chronic hyperglycemia due to absolute or relative deficiency of insulin secretion or action1 and it is classified into Type 1 and Type 2 Diabetes mellitus. Type 2 diabetes mellitus (T2DM) usually occurs in later adulthood and contributes 95% of all cases. It develops due to both insulin resistance and defective beta cell function. Failure of adequate treatment of T2DM can lead to complications such as retinopathy, neuropathy and nephropathy.[4] The World Health Organization predicted that by the year 2025, 300million people will be affected from diabetes. In

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India there is a steady increase in prevalence of Type 2 Diabetes mellitus and it is expected to have to 69.9 million diabetic cases by the year 2025. [4]

Depression is more prevalent among the diabetics and the coexistence of diabetes and depression are rapidly increasing.[5] Presence of depression in diabetic patients causes poor self management and decreased adherence to anti – diabetic treatment.[6] They are at more risk of fatal cardiovascular events like along with risk factors like smoking, obesity and sedentary lifestyle.[7] The micro and macro vascular complications were found to be higher in diabetes with depression than those with diabetes alone. [7]

Many diabetic patients with depression are unrecognized by the treating physicians. Only one third are treated appropriately for both diabetes and depression. Treatment of both these disorders is important for effective management.[8] This study aimed to estimate the prevalence of depression using (PHQ – 9 questionnaire) and to identify the factors influencing depression among patients with type 2 diabetes mellitus attending the NCD clinic of urban health training centre in Thirumazhisai, Thiruvallur District, Tamilnadu.

Method:

A cross sectional study was conducted to assess the prevalence of depression among the patients with Type 2 diabetes mellitus attending the NCD clinic of urban health training centre in Thirumazhisai, field practice area of Saveetha Medical College from January 2021 to April 2021.

Based on the study conducted by Larijani et al[9] in Iran in the year 2004, the prevalence of depression among type 2 diabetes mellitus patients was 41.9%, with an alpha error of 5% and the limit of accuracy of 15% the minimum sample size required for the study was estimated to be 250 study subjects by using the formula $Z^2 1\text{-}\alpha_{/2} P(1\text{-}P)/\varepsilon^2 P$

Out of total diabetic patients enrolled in the NCD clinic which was 278 patients, based on the exclusion criteria the final sample size achieved was 253.Before the commencement of this study, consent was obtained from the study participants.

Inclusion criteria:

Patients with Type 2 Diabetes mellitus above the age of 30 years and those who have been diagnosed at least for a minimum period of 6 months prior to the commencement of the study.

Exclusion criteria :

Patients with Type 2 Diabetes mellitus who have had clinical evidence of any other psychiatric illness excluding depression , those who were not willing to participate in the study and those who had no record of last recorded Capillary Blood Glucose(CBG) value in last 2 weeks were excluded.

The study tool consisted of two parts, first part was a pre – tested, semi – structured interview schedule which solicited information on the socio – demographic profile, history of other co – morbidities and details about substance abuse, last recorded capillary blood glucose level within 2 weeks which was obtained from the medical records. Socio-economic class was accessed using BG-Prasad classification.[10] Level of random capillary blood glucose was classified as per ICMR guidelines.

The second part being with regard to depression, a standard questionnaire Public health questionnaire – 9 (PHQ – 9) was used to assess the presence of depression and its severity. PHQ – 9 is a 9 – item questionnaire designed to screen for the presence of depression and its severity according to the DSM – IV criteria.[11] Each item in PHQ–9, queries the presence and frequency of depressive symptoms experienced by the study subjects in the last two weeks. Each item is rated on a 4–point Likert scale ranging from 0 (not at all) to3 (nearly every day). The total score of the PHQ–9 ranges from 0 to 27 and recommended severity cut – off scores are: none (< 5), mild (5 – 9), moderate (10 – 14), moderately severe (15–19), severe (> 19).

Data analysis: Data entry and analysis were done using the statistical package SPSS V22 version. Descriptive statistics were calculated for the background characteristics and to determine the proportion of diabetics with depression. Association between the factors and the presence of depression were analyzed by the test of proportions and chi – square test was used as a statistical test of significance.

Ethical approval:

Ethical clearance was obtained from the Institutional Ethics Committee, Saveetha University (SRB reference No: SMC / IEC / 2021 / 03 / 167) before the conduct of the study.

Results:

This study included 253 study subjects with Type 2 diabetes mellitus attending the NCD clinic of urban health training centre in Thirumazhisai, field practice area of Saveetha Medical College from January 2021 to April 2021.

The study subjects were in the age group between 30 to 80 yrs and the mean age of the subjects were 53 years $\pm$7 SD. Majority of subjects 155 (61.3%) belonged to the age group of 45 to 55 yrs. The background details of the study subjects are given in Table 1.

Table 1: Background details of the study subjects (N = 253)

Sr. No.	Characteristics	N	(%)
1	**Age**		
	Less than 45 years	19	7.5
	45 – 55 years	155	61.3
	56 – 65 years	65	25.7
	Above 65 years	14	5.5
2	**Gender**		
	Male	152	60
	Female	101	40
3	**Education Status**		
	Illiterate	24	9.5
	Primary education	40	15.8
	Secondary education	67	26.5
	Higher secondary education	57	22.5
	Graduate & above	65	25.7
4	**BG-Prasad Socio – economic class**		
	Lower middle class	22	8.7
	Middle class	46	18.2
	Upper middle	64	25.3
	Upper	121	47.8
5	**Consumption of Alcohol**		
	Yes	68	26.8
	No	185	73.2
6	**Smoking**		
	Yes	76	30
	No	177	70
7	**Duration of Diabetes**		
	Less than 5 years	112	44.3
	More than 5 years	141	55.7
8	**Presence of other co – morbidities**		
	Yes	168	66.4
	No	85	336
9	**Levels of capillary blood glucose**		
	Less than 150 mg / dl	103	40.7
	More than 200 mg / dl	150	59.3

The severity of depression among the study subjects is given in Figure 1. Among the subjects who had depression, it found that 56 (71.8%) of them had mild form of depression while 12 (15.4%) had moderate depression and 10 (12.8) of them had moderately severe forms of depression.

In this study the prevalence of depression among the study subjects was found to be 78 (30.8%). The association between the factors and the presence of depression are given in Table 2, in which the prevalence of depression was more among the females compared to males. Also the proportion of depression among illiterates and the graduates were found to be higher. Personal habits such as smoking and alcohol influence the depression which is identified by the higher prevalence among them.

Figure 1: Severity of Depression among study participants (N=78)

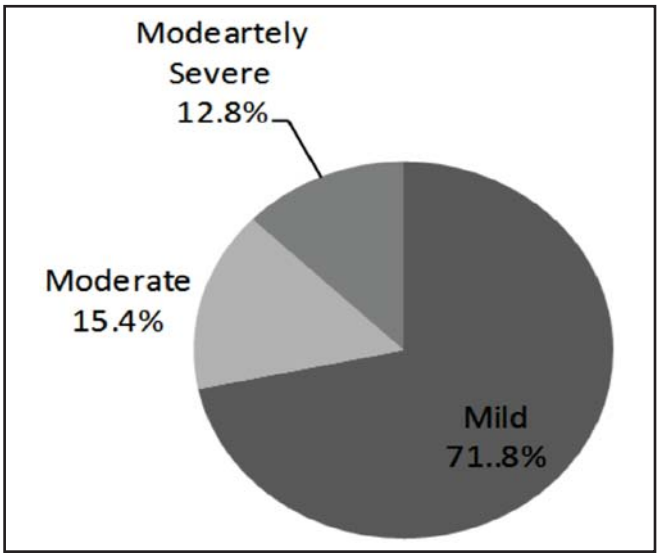

Table 2: Association between the Risk Factors and Depression (N = 253)

Sr. No.	Factors	Depression Present		Depression Absent		Chi Square Value	p Value
		n (78)	(%)	n (175)	(%)		
1.	**Age in years**						
	Less than 45 years	9	47.3	10	52.7	4.995	0.172
	45 – 55 years	41	26.4	114	73.6		
	56 – 65 years	24	36.9	41	63.1		
	Above 65 years	4	28.5	10	71.5		
2.	**Gender**						
	Male	39	25.6	113	64.4	**4.776**	**0.028***
	Female	39	38.6	62	41.4		
3.	**Education status**						
	Illiterate	7	41.1	17	58.9	**11.6426**	**0.020***
	Primary education	8	20	32	80		
	Secondary education	15	22.3	52	73.7		
	Higher secondary education	18	31.5	39	68.5		
	Graduate & above	30	46.1	35	53.9		
4.	**Socio – economic class**						
	Lower middle class	7	31.8	15	68.2	5.0707	0.167
	Middle class	14	30.4	32	69.6		
	Upper middle	13	20.3	51	79.7		
	Upper	44	57.1	77	42.9		
5.	**Consumption of Alcohol**						
	Yes	39	57.3	29	42.7	**30.6767**	**0.000***
	No	54	29.1	131	70.8		
6.	**Smoking**						
	Yes	40	52.6	36	47.4	**24.2127**	**0.000***
	No	44	24.8	133	75.2		

7.	**Duration of Diabetes**						
	Less than 5 years	29	25.8	83	74.2	2.2971	0.187
	More than 5 years	49	34.7	92	65.3		
8.	**Presence of co–morbidities**						
	Yes	56	33.3	112	66.7	1.4694	0.178
	No	22	25.8	63	74.2		
9.	**Capillary blood glucose levels**						
	Less than 150 mg / dl	35	37.6	58	62.4	2.1182	0.145
	More than 200 mg / dl	43	28.6	107	71.4		

Discussion:

In the present study, the prevalence of depression among the type 2 diabetes patients was found to be 30.8%. Similar studies conducted by Aminu A et al and Roupa Zet al [12, 13] in the primary care settings showed nearly the prevalence of 30 – 35 %.

With regard to age, there is no significant association between age and depression. Similar finding was found in other studies conducted in India. [14-19] This clearly indicates that there is no age predilection to develop depression among the diabetes. It was found in the present study that, depression was more common in females than the males. Studies conducted by Aminu A et al, [12] Nasser J et al, [20] and Agbir TM et al [16] noted that female diabetic patients were more prone to develop depression. This could be due to the gender specific problems like menstrual cycle changes, pre and post menopause and additional stresses like taking care of children.

With reference to educational status, it was found that those with higher educational status had more risk of developing depression when compared to others. This finding is comparable to the studies conducted in Southi Arabia by AlBekairy A et al.[21] However, this could be because the literates outnumbered the other educational groups in this study.

Depression was found to be more among smokers (52.6%) and among those who consumed alcohol (57.3%) than among the non – smokers and those who did not consume alcohol and this difference was highly significant. It is essential to create awareness among the diabetes patients about the need of cessation of substance abuse in order to improve the quality of life.

Percentage of depression was more among those having diabetes for more than 5 years, but the difference was not statistically significant. These finding is consistent with similar studies conducted in India.[14-19] There was no significant association between the presence of co-morbidities and the depression.

With regard to the blood glucose levels which were recorded in the last 3 weeks, it was found that among those with the high capillary blood glucose levels, the prevalence of depression was high, however this difference was not statically significant. The findings were similar to that found in the studies conducted by Raval A et al[14] and Thour A et al. [18]

Limitations:

Since it is not a community based study, the results cannot be generalized. Also the causal association of alcohol and smoking with depression cannot be established.

Conclusion:

The prevalence of depression among type 2 diabetes patients was 30% and it was found that gender, educational status, consumption of alcohol and the habit of smoking seemed to play a significant role. Hence it is important to screen for the depression in type 2 diabetes patients in NCD clinics and to emphasize the counseling services which could help in the effective management of both disorders.

Declaration:

Funding: Nil

Conflict of Interest: Nil

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Headphone/Earphone Usage Practices and its Health Effects among College going Students: A Cross-Sectional Study from South India

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Abstract:

Introduction: Noise induced hearing loss is one of the most common public health problems occurring due to use of headsets. The usage of earphone/ headphone has been increasingly used in the recent times due to online learning. **Objective:** To determine the usage practices of headphone/earphone and associated effects among college students of Tamil Nadu. **Method:** A cross-sectional study was conducted among college students in Tamil Nadu from January to February 2022. Snowball sampling technique was used, and 640 students respondedto a pre-tested semi-structured questionnaire circulated through online platform. **Results:** Out of 640 students, 57.1% were female students, 71.5% students used earphones for less than 5 hours, 32.5% students cleaned earphone daily, 46.6% didn't share their earphone, whereas 83.1% of students experienced at least one symptom or sign on using earphone. **Conclusion:** Due to online learning, earphone usage and its effects was increased among students in our study, so awareness about rational use of earphones is much needed among the younger generations.

Key Words : Earphones/ Headphones, Ear symptoms, Online learning, Students

Introduction:

Technology while turning into an imperative part of our life,Headphone/earphone usage is alsoproducing hazardous effects among users. Use of headphone/earphone for listening to music, watching videos and playing games has become a common practice among the students in recent times.[1] WHO has recommendedto limit the use of headphones and earphones to an hour per day.[2] It also stated over 1.1 billion people, aging 12 -25 were at risk of hearing loss.[3] In 1994, 3.5 percent of American teens experienced hearing loss. But that number rose to 5 percent by 2006. By the year 2050, nearly 2.5 billion people may have some degree of hearing loss and about 700 million might require hearing rehabilitation.[4]According to Indian Council of Medical Research, hearing impairment due to earphone usage is on rise in India and one out of every 12 people is a victim.[5]. About 6.3 percent of the Indian population suffers from progressive and acute hearing loss. Sound levels beyond 70 decibels and prolonged hearing for over eight hours may start damaging the hearing and sound above 120 dB cause immediate harm.[6] More literatures have reported overuse of earphone has resulted in dizziness, tinnitus, difficulty in understanding the speech and decreased ability to hear.[7-9] In recent times, due to the COVID-19 pandemic, education has undergone a drastic change with shift to virtual education. However, there has been an associated change in lifestyle with minimal or no physical activity of social life among students. With complete shift to online learning, there is a possibility of cumulative harm to sensory organs and mental health among the

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students. The potential for hearing loss is escalating every year among younger generation. Considering the increasing usage of earphone for online learning, this study was planned to determine the usage practices of headphone/earphone and associated effects among college students of Tamil Nadu.

Method:

Across-sectional study was conducted from January to February, 2022 during the early 3rd wave of pandemic with temporary shift to online learning among college students of Karpaga Vinayaga Educational Groups in Tamil Nadu. Students who were using earphones and willing to participate in the study were considered as study participants. Those individuals who were having any ear problems or hearing difficulties were excluded from the study population. The sample size was calculated using the formula $n=4pq/d^2$ (where Z=1.96 at 95% confidence); a similar study done by Poorasi AM et al reported the prevalence of hearing impairment as 60% (p), Taking 4% as absolute error[10]. Accounting for a 10% non-response rate, the sample size estimated was 640. A Pre-tested, semi-structured questionnaire consisting of the following sections was used as study tool- socio demographic details (like gender, course and year of study); Type, duration and usage of devices included (range of volume was taken with the warning shown when upper side button in android phones alerts, purpose of usage, maintenance of device, sharing the earphones);and physical symptoms experienced due to headphones/earphones usage. The study was conducted after obtaining approval from Institutional Ethics Committee. The google survey form was prepared and responses were collected by sharing the link through WhatsApp groups and the respondents were requested to share the link among their friends. The first part of Google form consisted of information of purpose of study and consent form. The participation was voluntary, and the students were given a choice to exit the study at any point of the survey. The responses were transferred to Microsoft excel and compiled using Microsoft Excel 2010 and was analysed using the Statistical Package for the Social Sciences (SPSS) version 22.0 (IBM Corp., Chicago, IL, USA, 2010). Statistics was summarized using frequency and percentages for all the variables. Chi square test was used for statistical analysis to identify any association between variables, p value < 0.05 was considered as statistically significant.

Results:

After eliminating the incomplete responses, a total of 640 college students were included in the study. Table 1 shows the distribution of duration of earphone usage based on the demographic characteristics of the students. Out of 640 students, 57.1% of the study participants were females and 53.8% were medical students. Majority of the students(97.7%) had used earphones during the pandemic.

Table 1: Association between the socio-demographic characteristics and duration of earphone usage in a day among the study participants (N=640)

Socio-demographic characteristics	Duration of usage in a day			p value
	Total (640)	Less than 8 hours (458)	More than 8 hours (182)	
Gender				
Male	274 (42.9)	199 (72.6)	75 (27.4)	0.605
Female	366 (57.1)	259 (70.8)	107 (29.2)	
Course of study				
Medicine	344 (53.8)	247 (71.8)	97(28.2)	0.785
Engineering	172 (26.9)	120 (69.8)	52 (30.2)	
Nursing	124 (19.3)	91 (73.4)	33 (26.6)	
Year of Study				
I	179 (28)	136 (76)	43 (24)	0.387
II	211 (33)	145 (68.7)	66 (31.3)	
III	143 (22.3)	99 (69.2)	44 (30.8)	
IV	107 (16.7)	78 (72.9)	29 (27.1)	

Most students (71.5%) used earphone for less than 8 hours. More than half of the students used wired type of connectivity (52.5%), among them 84.5% of students had symptoms; 27% of students had reported that they used headphones while charging their smartphones and among them 83.2% developed symptoms. About 70.3% of students used the range of volume within limit, among them majority (82.2%) had symptoms, 32.5% of students cleaned their earphones daily and 46.6% of students

did not share their earphone. There was statistically significant association between sharing of earphone and symptoms experienced while using earphones.

Table 2: Association between the earphone usage characteristics and symptoms experienced while using earphone among the study participants (N=640)

Socio-demographic characteristics	Symptoms experienced while using earphone			p value
	Total (640)	Yes (532)	No (108)	
Type of connectivity				
Bluetooth	203 (31.7)	165 (81.3)	38 (18.7)	0.599
Wired	336 (52.5)	284 (84.5)	52 (15.5)	
Both	101 (15.8)	83 (82.2)	18 (17.8)	
Duration of usage of earphone in a day				
Less than 8 hours	458 (71.5)	379 (15.9)	79 (17.2)	0.689
More than 8 hours	182 (28.5)	153 (28.8)	29 (15.9)	
Use earphone/ head phone while smart phone is charging				
Yes	458 (71.5)	379 (15.9)	79 (17.2)	0.963
No	182 (28.5)	153 (28.8)	29 (15.9)	
Range of volume				
Above limit	190 (29.7)	162 (85.3)	28 (14.7)	0.348
Within limit	450 (70.3)	370 (82.2)	80 (17.8)	
Cleaning of earphone/ head phone				
Daily	208 (32.5)	169 (81.2)	39 (18.8)	0.127
Never	432 (67.5)	363 (84)	69 (16)	
Sharing of earphone/ head phone				
Yes	342 (53.4)	300 (87.7)	42 (12.3)	0.001*
No	298 (46.6)	232 (77.9)	66 (22.1)	

*p value < 0.05 was statistically significant

The common symptoms experienced by the students while using earphones were headache (41.9%), ear pain (36.1%), itching/irritation (27%), impaired hearing (6.9%). Common symptoms of ear infections which the students reported were ear discharge (19.5%), swelling (6.9%) and reddening (17.7%). On prolonged usage of earphones, 23% of students had ringing of ear, 25.9%had ear block,10.9%had auditory hallucination (Hear noises that don't exist in reality), 20% had dizziness (feeling faint) and 14.5% had hyperacusis(unusual tolerance to ordinary environmental sounds). There was statistically significant association found between sharing of earphone and having any one of the symtoms of ear infection on earphone usage (Table 3).

Table 3: Association between the earphone usage characteristics and Sign of ear infections on earphone usage among the study participants (N=640)

Earphone/ Head phone characteristics	Symptoms experienced while using earphone			p value
	Total (640)	Yes (268)	No (372)	
Type of connectivity				
Bluetooth	203 (31.7)	77 (37.9)	126 (62.1)	0.261
Wired	336 (52.5)	143 (42.6)	193 (57.4)	
Both	101 (15.8)	48 (47.5)	53 (52.5)	
Duration of usage in a day				
Less than 8 hours	458 (71.6)	189 (41.3)	269 (58.7)	0.621
More than 8 hours	182 (28.4)	79 (43.4)	103 (56.6)	
Use earphone/ head phone while smart phone is charging				
Yes	173 (27)	79 (45.7)	94 (54.3)	0.237
No	467 (73)	189 (40.5)	278 (59.5)	
Range of volume				
Above limit	190 (29.7)	77 (40.5)	113 (59.5)	0.653
Within limit	450 (70.3)	191 (42.4)	259 (57.6)	
Cleaning of earphone/ head phone				
Daily	208 (32.5)	91 (43.8)	117 (56.2)	0.505
Never	432 (67.5)	177 (41)	255 (59)	
Sharing of earphone/ head phone				
Yes	342 (53.4)	159 (46.5)	183 (53.5)	0.011*
No	298 (46.6)	109 (36.6)	189 (63.4)	

*p value < 0.05 was statistically significant

Among the study participants about 48.4% of students had used earphone frequently for online classes, 30% for entertainment purpose and 11% for phone call.The distribution of scenario of usage among the students showed that about 61.9% used during travel purpose, 45.80% used while studying 33% during physical activity and 13.3% while driving.The common impact reported due to earphone usageamong students were sleep disturbances (89.4%), lack of focus in academics (43.2%) and lessinteraction with family(6.1%).

Discussion:

Increased usage of headphone/earphone has been reported to cause significant health effects. Hence, a study was planned to determine the usage of earphone and for assessing the health effects caused due to its usage among college students. In our study, the prevalence of usage of earphones among females were higher than the males which was similar to a study done by Mohammand Poorasi et al and Harshitha et al.[11-12] But few studies done by Suchdeva et aland Kannan et al showed higher usage among males.[3,9] In our study, medical students were found to use the earphone more than the other students. Since it was an online study with snowball sampling equal representation of all streams could not be obtained. In our study, 52.5% students had used wired type and 31.7% had used Bluetooth type earphone when compared to the previous study done by Suchdeva et all in Chandigarh in 2018 wired earphone usage was 75% and Bluetooth was 7%, it shows that wired earphone usage has been decreased because of advancement of recent technologyand need for increased usage for online learning[9] In our study, proportion of students who shared earphones were 33.8%, which was similar to the previous study done by Suchdeva et alreported49% shared earphones.[9] Similarly, 88.6% of students clean their earphone which was remarkedly higher when compared to Suchdeva et al(51%) and Alarfaj et al(29.8%) study.[8,9] Reduced sharing and increased cleaning of earphone might be due to increased awareness about personal hygiene and privacy among study participants. More than 75% of the students avoided using earphones while charging the smartphones which is a positive behaviour compared to Das study where the corresponding proportionwas 44.7%.[7] This may be because of the raised awareness through media and social media about hazards caused of using smartphones while charging. Majority of the students had reported that they had used earphones for less than 8 hours which might be because they are facing irritation on prolonged usage of earphone. Similar finding has also been reported by Suchdeva S et al study.[9] In the current study, 61.9% of students used earphone while travelling, 45.8% of students used for while studying, 33%while doing physical activity, 22.2% used while sleeping and 13.30% used while driving. Travelling was found to be the main setting associated with earphone usage in asimilar study done in Saudi Arabia by Alarfaj et al.[8] In the present study, 83.1% of students had experienced at least one of the ear symptoms on using the earphone and 41.9% of students had at least one of the signs of ear infection. In this study, participants showed increased effects such as 23% had tinnitus, 17.7% had ear infection and 19.5% had discharge, similar distribution of frequency of symptoms were reported in studies done by Suchdeva etal(20% had tinnitus, 13% had ear infection and 12% had ear discharge) and Alarfaj et al(16.5% had tinnitus, 28% had infection) although the exact proportion was marginally lesser.[8,9] In our study, distribution could be due to increased usage of earphones/ headphones during the COVID pandemic.

Limitation:

Considering this as an online study with snowball sampling technique, the result could not be projected to entire student's population and there might be over-representation of students who actually used earphones.Selecting the subjects in this study was biased as they were consumers of social medias and smart phones. But this study adds value as one of the first studies to assess the headphone/earphone usage practices and its impact during COVID-19 pandemic. There is also a need to revamp education to increase blended or asynchronous learning in such circumstances in future.

Conclusion:

In this study, majority of the study participants had experienced ear symptoms while using earphones. About one third students had symptoms suggestive of ear infection in this study. Almost half of the students had used earphones for attending online classes and while studying. Due to prolonged usage of headphones, majority of participants had sleep disturbances and lack in focus in studies. Further research and activities are recommended to improve the current situation.

Declaration:

Funding: Nil
Conflict of Interest: Nil

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Does This COVID-19 Pandemic Demand a Scale Up in AEFI Reporting in India?

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Abstract:

The COVID-19 Pandemic has changed the global picture in the field of public health in the past few years. This critical time has made life very uncertain for everyone. Man has been constantly striving to discover measures to stop the spread of this deadly virus; the COVID-19 vaccine is one such endeavour. The fear and anxiety towards a new vaccine is high among the general public. With every new vaccination, constant monitoring and documentation of the vital happenings is very important. Thus, the reporting of Adverse events following immunization (AEFI) needs to be strengthened and implemented more efficiently to analyse the efficacy of this vaccination drive with respect to protection from the disease without causing any harmful adverse effects.

Key Words: Adverse Events following Immunization (AEFI), COVID-19 pandemic, Surveillance, Underreporting, Vaccines

Introduction:

The goal of immunization is to protect the individual and public from vaccine preventable diseases. However as with any biological product there are adverse events which follow immunization. WHO defines Adverse Events following Immunization (AEFI)as "Any untoward medical occurrence which follows immunization and which does not necessarily have a causal relationship with the usage of the vaccine". The adverse event may be any unfavorable or unintended sign, abnormal laboratory finding, symptom or disease."One of the most important needs for AEFI monitoring is to find rare, late effects of the vaccine which cannot be identified in the Pre- licensure trials of the vaccines. The data should be reported and maintained specific for each country; this will improve the local trust for global immunization programmes[1]. India's Universal Immunization Programme (UIP), targets around 27 million new-borns and about 30 million pregnant women each year. India is the largest vaccine manufacturer and consumer among the developing countries, being a large consumer as well as manufacturer, India is expected to have a well-developed AEFI surveillance system.[2]

The AEFI reporting in India takes place through a hierarchical process, starting from the subcentre to the PHC's and then to district and state headquarters followed by the national level finally.

Global Picture for AEFI Reporting

The AEFI reporting ratio trends were documented Globally around the six world health organisation regions and it was found that by 2015 60% of countries in the WHO Region of the Americas reported at least 10 AEFI per 100,000 surviving infants, followed by 55% in European Region, 43% in Eastern Mediterranean Region, 33% in Western Pacific Region, 27% in South-East Asia Region and 21% in African Region.[3] Hence

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Table 1 : Modes of Reporting Adverse events following Immunization[6]

Sr. No.	Country	AEFI Reporting Agency	AEFI Reporting mode (Offline: AEFI reporting form, Online or both)
1	United Kingdom	Medicines and Healthcare products Regulatory Agency & Commission on Human Medicines-yellow card	Both
2	United States of America (U.S.A)	Central Drugs Standard Control Organisation-IPC	Both
3	Australia	Therapeutic Goods Administration-Australian govt	Both
4	Singapore	HSA	Both
5	India	Central Drugs Standard Control Organisation - Indian Pharmacopeial Commission (IPC)	Both
6	Saudi Arabia	Saudi Food & Drug Authority (SFDA)	Both
7	New Zealand	Central Drugs Standard Control Organisation-IPC	Both
8	Sri Lanka	Cosmetics, Devices & Drug Regulatory Authority. (CDDA)	Offline
9	Canada	Canadian Adverse Events Following Immunization Surveillance System (CAEFISS)	Offline

worldwide the reporting of AEFIs increased but more work had to be done by the middle- and low-income countries. (Table 1)

AEFI Surveillance System in India

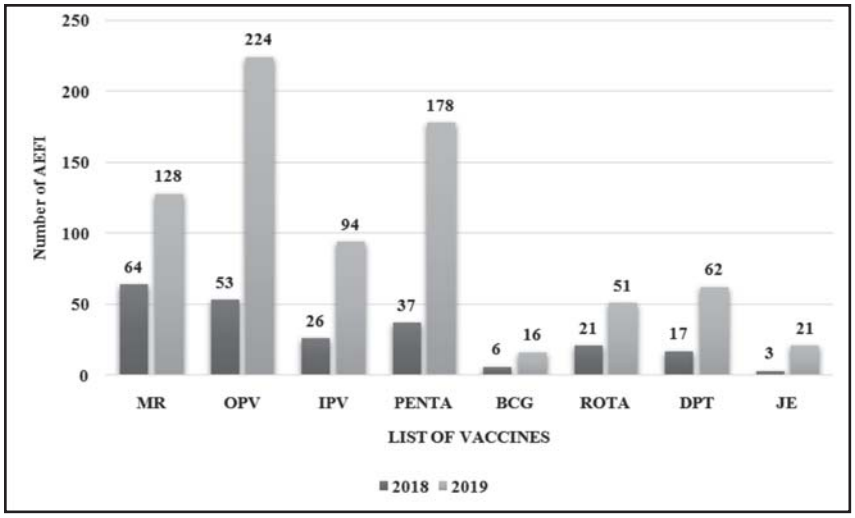
The AEFI surveillance system in India started along with the Universal Immunization Program (UIP) in 1985.The reporting has been satisfactory for quite a long time. In 2005-06 with the guidance of the world health organisation, the AEFI Surveillance and Response Operational Guidelines were formulated. These were circulated throughout the country among various medical officers and health workers. These guidelines have led to strengthening of our surveillance systems to a great level when compared to before.The AEFI surveillance program represents the country's initiative to deliver quality immunization programs with safe vaccines. The national AEFI guidelines were then revised in 2010,2015 and presently under revision as in September2020.[4]

In India, there has been a five-fold increase in reporting of severe/serious AEFIs between 2012-2019 (ranging from 398 to 2662 cases). The average number of AEFIs per district has increased from 1.3 cases in 2015 to about 3.7 cases in 2019.[6] The national quality assurance standards for AEFI Surveillance which was developed in 2016 led to various positive changes, however the gaps have not been completely filled and India is still one step backward in reporting when compared to the other countries.

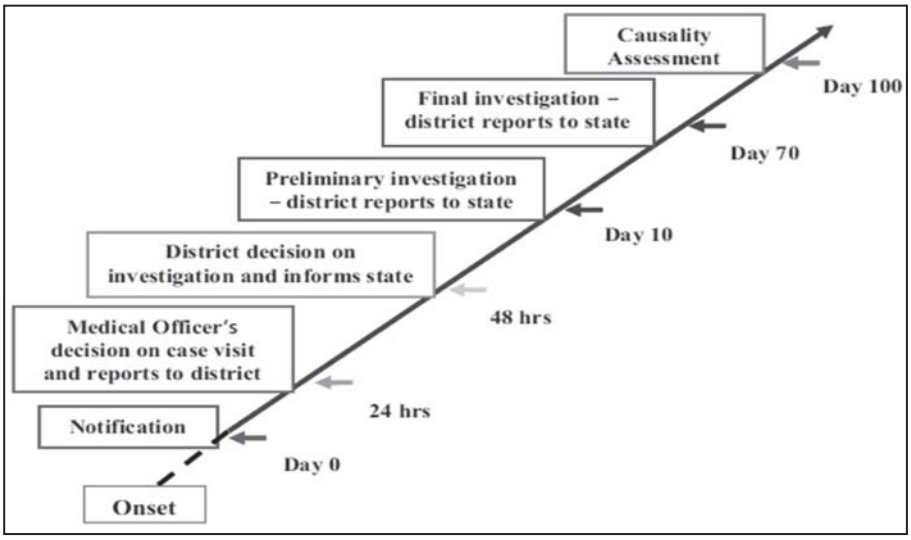
Reporting of AEFI:

The reporting of AEFIs happen by various modes in different countries. In India it happens in both offline and online mode. The immunization division of the ministry of health and family welfare is responsible for this. The National Health system resource Centre in the capital is functioning as the resource centre for AEFI.[5] The offline mode of reporting is done by various forms such as the preliminaryand final case investigation forms. These forms have to be filled out by the respective people and sent as per the timeline. Immediate medical management and investigations play a very crucial role in AEFI surveillance. Accurate causality

Figure 1 : Bar chart depicting the AEFIs with respect to Vaccines 2018 -19



Timeline of AEFI Reporting[1]



assessment can be done only when proper investigations and history is collected. The online portal for AEFI reporting in India is the SAFE-VAC (Surveillance and Action for Events following Vaccination). This is a web-based application software which will help people at all levels to monitor the progress of reporting. The Co-Win portal which has been used for the covid vaccination drive has been integrated with the SAFE-VAC reporting for real time AEFI monitoring.[7] There will be no loss of information in the process of transfer from district to state to national level. The reports of the causality assessment done by the state can be accessed by the programme managers and vaccinators, thus timely action can be taken.[8]

Figure 1 has been interpreted by consolidating the AEFI data of the years 2018 and 2019 from the Ministry of health and family welfare website. There was no data for the year 2020 and data in the year 2021 was related to the covid vaccines and were very few to bring conclusions. It has been observed that the number of cases reported were higher in 2019 when compared to that of 2018. However, the data was not completely given for all the states in the website; hence it can either be understood as nil cases or underreporting. Thus, it would be easier to get a clear picture if the nil cases are also mentioned in the reports. More consolidated methods of report making would make comparisons easier and help in more efficient policy making.

Figure 2 : Bar chart depicting the AEFI'S with respect to states-2018

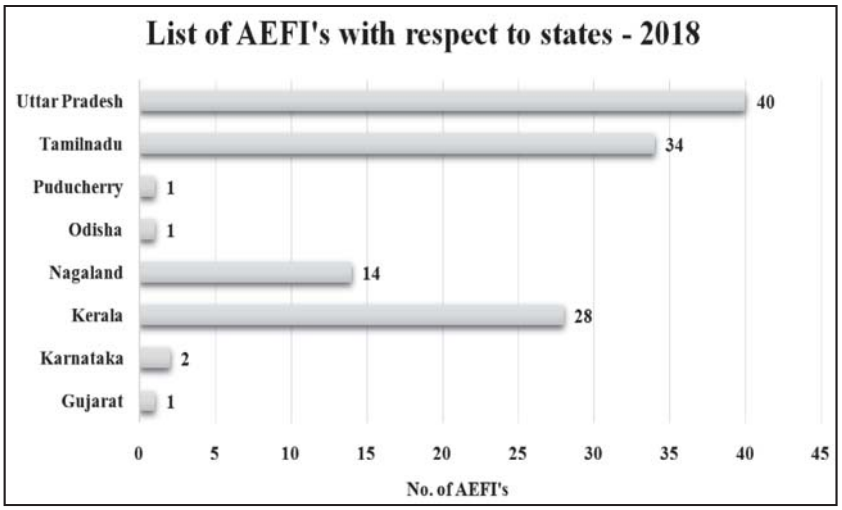
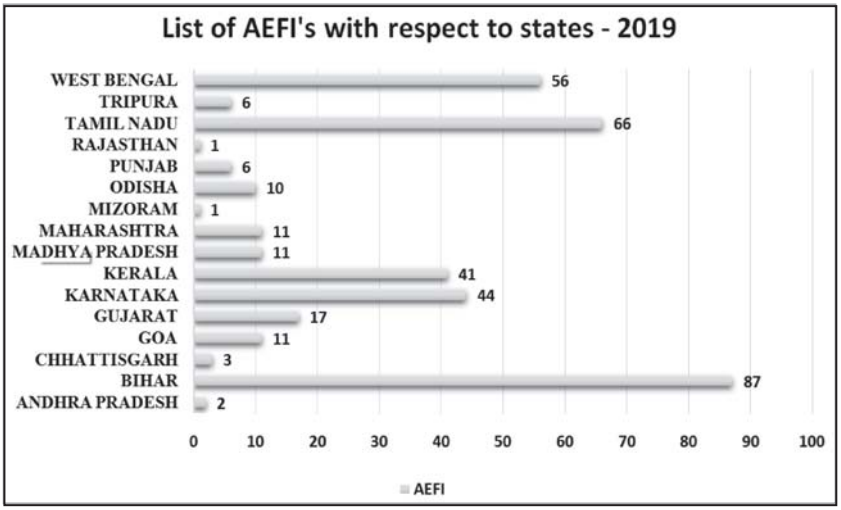


Figure 3 : Bar Chart depicting AEFI'S with respect to states -2019



Issues to be addressed:

About two third of the Indian districts do not report even a single case of AEFI. Some districts only report deaths. Under-reporting is one of the few major issues to be addressed. Reporting of AEFI following COVID vaccines have suddenly declined hindering us from gaining information regarding the efficiency of the vaccine.[9] There is a lack of awareness about AEFI reporting among clinicians, health workers and paediatricians especially in the private sector. The PHC's lack AEFI registers and minor AEFIs are brushed aside and are not documented. Even if the cases are documented the investigations necessary for the reported cases are not done on time. The district AEFI committees have to conduct meetings more often and regulate the reporting system with changing times. In spite of emergence of various reporting methods with technological advancement, these resources have not been utilized to the fullest potential.

Recommendations:

In the era of newly arising collaborative studies and scientific advancements, the investment in strategic reporting of AEFI is the need of the hour. Proactive communication methods and campaigns should be employed to convey knowledge about AEFIs to the stake holders and the general public. Reporting and documentation of AEFIs need to be looked at more closely. The Covid19 pandemic is making the routine things more demanding. As we are expecting India to be vaccinated against Coronavirus this year, it makes it doubly important

for India to strengthen the AEFI Surveillance system. With India being one of the largest vaccine manufacturers, achieving a system to cater the growing needs of the country is a major public health Challenge, but this is not unknown to India. With the help of innovative concepts, clear vision and stable communications at all levels starting from the primary health centre to the national AEFI committee we can bring a concrete AEFI reporting system. Using this COVID situation to our advantage, we can change AEFI reporting in India for the better.

Declaration:

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Conflict of Interest: Nil

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Learning Circle Communities- An Experience with Medical Postgraduates

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What problem was addressed?

Online Communities of Practice (OCoP) or Learning Circle Communities, especially amid pandemics have a significant role to play in professional development. One of the long–term goal of Indian Medical Graduate is lifelong learning, so oCoP is an opportunity to shape professional's attitudes and behavior and also to increase efficiency at work. For this, improving collaboration with colleagues by increasing the interpersonal connections is of utmost importance. Etienne Wenger defines Communities of Practice as "Group of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly. Membership therefore implies a commitment to the domain, and therefore a shared competence that distinguishes members from other people. They value their collective competence and learn from each other. In pursuing their interest in their domain, members engage in joint activities and discussion, help each other, and share information.[1]

What was tried?

The Postgraduate students (N=18) of Community Medicine studying at a Medical school of India were introduced and exposed to a process of learning circle communities. The objective was to help the students to develop conversations to link where they came from, where they are and where they might go. The author oriented the students emphasizing the purpose & process and appropriate instructions were given to them. The first assignment given to them was "Tell Your Personal Professional Stories". They had to go around the group. Have each person interview one person, and be interviewed by another–so that all of them would have experience of both being interviewed and interviewing. The second step was "The Tree Of Life' This included; An Appreciative Inquiry Of their Life with question guidelines given to them.

What lessons were learnt/Reflections?

Reflections of post graduates regarding Online Communities of are sumarized in Table-1

Table 1 : Reflections of post graduates students regarding Online communities of Practice

What it is?	What happened?	So what?
• A process of understanding others • Method to share knowledge and experience • Process of self exploration • Process of understanding self, others and the environment • Reduces theory-practice gap	• After being exposed to learning circle, understood my college in a better way • Interaction with colleagues became easy • Rapport building with friends · Improved my listing power and tolerance • Learnt from each other	• If this becomes part of the post-graduate's curriculum it would enhance knowledge sharing culture • Influence the professional's attitudes and behavior and also increase efficiency in work • It would reduce conflicts between colleagues • Interpersonal- relationship would strengthen

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What next?

The students realized the relevance of Community of Practice and were willing to participate. It is planned to replicate the process using online platform (or in person) with larger group of students to promote a sense of community, student learning, professional development, support and building knowledge, especially on sharing and promoting evidence-based practice.

Declaration:

Funding: Nil

Conflict of Interest: Nil

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Integrating Blockchain technology for Nutritional Safety- A New Way Forward

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Abstract:

The food industry is diversifying and adapting to shifting consumer tastes and environmental issues. Consumers value the quality and uniformity of the fundamental ingredients used to make packaged goods, as well as the longevity, originality, logistics, lifespan, and recyclability of packaging. For the global distribution of food, the safety of agricultural products is critical. In order to enhance efficiency and maximize product manufacturing and distribution, data and information technologies are becoming increasingly vital in the global food and agriculture industry.

In the "food and agriculture" (FAI) industry, blockchain is a well-known technical innovation. It facilitates the timely sharing of information such as origin, batch number, and production date, as well as the openness and transparency of the manufacturing environment, food safety certification, and organic products, all of which contribute to food safety and customer trust.

Keywords: Blockchain, Food and agriculture industry, Internet of Things

Dear Editor,

With the emergence of the COVID pandemic, consumers are paying more attention to pure and indigenous components with little or no chemical additives and unprocessed or inadequately processed items to promote robust immunity.[1] The food chain must become more viable to improve customer confidence and willingness to buy. Identifying and managing the sources of contamination in agri-food chains require tracking and verifying information throughout the food supply chain, which adds to sustainability management.[2]

The safety of agricultural products is critical for the global distribution of food.[3]Imprudent usage of germicides, fertilizers with additional compounds, or metal ions deposits produced from irrigation with wastewater may damage the standard and safeness of agro-foods before and after harvesting.[4] These safety problems are caused by inadequate monitoring or surveillance systems and pose serious hazards to human health.[5] The global food and agriculture sector is relying more and more on data and Information Technologies (IT) to increase productivity and optimise product manufacturing and distribution.[6]Recent advancements in blockchain technology are being tested in several food and agricultural industries.[7]

"A blockchain is a distributed database, which is shared among and agreed upon a peer-to-peer network. It consists of a linked sequence of blocks (a

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storage unit of the transaction), holding timestamped transactions that are secured by public-key cryptography (i.e., hash) and verified by the network community. (Figure 1) Once an element is appended to the blockchain, it cannot be altered, turning a blockchain into an immutable record of past activity". [8-9]

Public blockchains are blockchains with no permissions, allowing all participants to see all records, whereas private blockchains maintain privacy by allowing only a limited number of people to examine specific information. They can also be anonymized and presented.[10]

Blockchain is efficient in preventing database tampering, and replication.[10]It enables the prompt exchange of information about origin, batch number, etc., as well as the openness and transparency of the manufacturing environment and food safety certification, all of which support food safety and customer trust.[11]

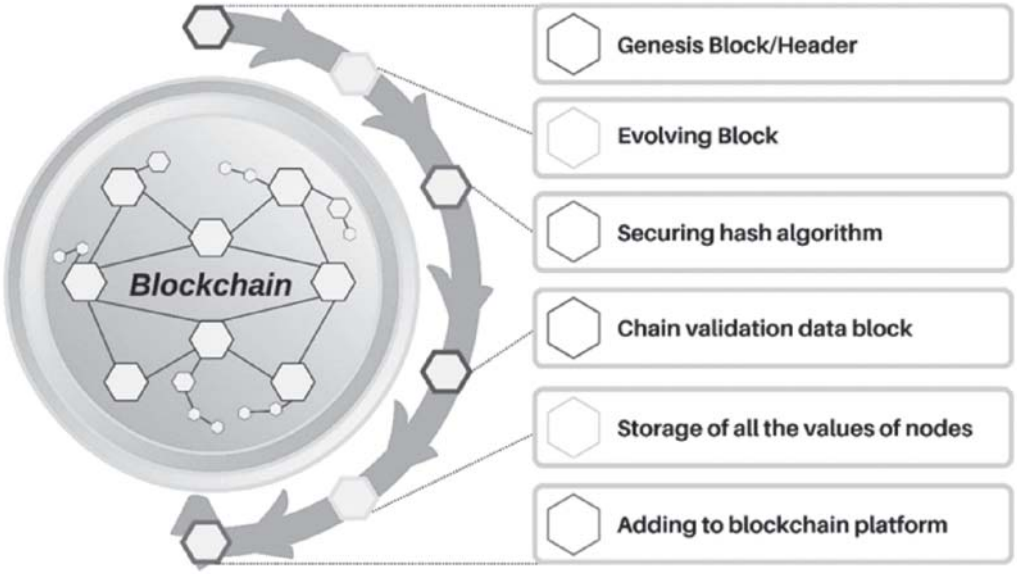
The consortium blockchain satisfies consumer expectations for food safety and complies with government agencies' standards for food safety and quality assurance.Producer nodes join the private blockchain, whereas consumers and regulators join the public blockchain, ensuring the security of business transactions and meeting public demand for essential data. To establish their identity, all eligible users must use a unique identification, such as government-issued documents, to enroll in a consortium chain system. This chain can be maintained and utilized as a shared ledger by nodes belonging to different consortium agencies. The consortium blockchain can be used to verify food quality and safety based on the listed attributes.[12]

In 2017, the American retailer Walmart and the IT company International Business Machines(IBM) launched the first initiatives in food traceability, demonstrating the effectiveness of blockchain systems using mangoes and pork as examples.[13]

In the agri-food sector, a blockchain collaboration model was created where the food firm delivers agricultural data while the blockchain company is in charge of technical support, including platform setup and database maintenance. "IBM, Ripe.io, Transparent Path, Foodlog IQ", etc are among the companies attempting to integrate blockchain into the food system.[5]

The IBM Food Trust program has looked into using blockchain technology to establish a safe, shareable, and permissioned digital copy of agro-based data, allowing involved parties to get access to

Figure 1: Working of "blockchain technology"



technology and information that can assist enhance food security and the food chain in general (Trust). Large-scale firms and key component distribution organizations such as “Walmart, Carrefour, Nestle”, etc are now creating such systems.[5]

Customers are willing to pay more for locally produced goods when they receive product information via "smart labels," including farms that produce the primary substance (milk), the potential contribution of thermo chromic labeling to promote local food security, and the nutritional advantages of dairy. For producers, technology ensures operational transparency and control of the manufacturing process from start to finish andpersonalizes digital advertisements.[1]

The combination of blockchain technology and the Internet of Things has the potential to revolutionize the food business. Consequently, some merchants have already put pressure on their providers to utilizethe blockchain to create a more open distribution network and improve food security. It is necessary to make sure that the food and blockchain data are integrated and that no exchange occurs. Explicit branding of foods containing artificial but innocuous ingredients is viewed as a source of concern by many consumers. Therefore, additional methodologies and analytical technologies are required to meet the expectations of the food industry. When maintaining the confidential information and the digital information capacity required by modern technology, several challenges must be overcome. All this necessitates a tough change in the corporate world and current work process, primarily for micro and mid-size enterprises, as well as the creation of appropriate data transmission criteria and protocols.Therefore, it is time-consuming to develop blockchain technology.[13]

Declaration:

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