EXPLORING ASSOCIATION BETWEEN ORAL HEALTH LITERACY AND ORAL HEALTH RELATED QUALITY OF LIFE IN ADULTS OF RURAL AREAS OF KADIPUR TAHSIL, UP

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Dissertation submitted in partial fulfilment of the requirement for the award of Master of Public Health

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Trivandrum, Kerala. India – 695011

June 2024

ACKNOWLEDGEMENTS

I would like to express my heartfelt gratitude to my parents for their unwavering support, encouragement, and sacrifices throughout my academic journey. Their love, guidance, and belief in me have been the driving force behind my success.

It was a privilege to do a dissertation under the able guidance and supervision of my guide, Dr Biju Soman. I am indebted to him for his keen interest and guidance.

I would like to express my sincere thanks to the entire faculty of AMCHSS – Dr. P Sankara Sarma, Dr. Mala Ramanathan, Dr. K Srinivasan, Dr. Rakhal Gaitonde, Dr. Raviprasad Varma, Dr. Jeemon P, Dr. Jissa VT, Dr. Srikant, and for their immense support and valuable comments during my presentations.

I express my gratitude to Dr. Vikram Aggarwal for permitting me to use the Hindi version of the OHIP-14 tool, and I would also like to express my gratitude to Sandesh Nagarajappa, Professor and Head of Department at Sri Aurobindo College of Dentistry, Indore, for permitting me to use Hindi version of Oral Health Literacy Adult Questionnaire.

I would like to thank my Chacha ji Shri Atul Mishra, my Chachi ji Smt. Vandana Mishra, my Buaji Smt. Archana Mishra for her support and help during my data collection. I would also like to support Shri Lalmani Tiwari and Shri Rajesh Tiwari for their support and help during my data collection.

I extend my special thanks to Dr. Aparna Sasi, Dr. Nagarajan CS, Er. Lenin P, Dr. Ishika Arora, Kajal Prajapati, Dr. Gloria, Dr. Arshi Chawla, Dr. Shakti, Dr. Mehrunissa, Dr. Chunoti, Dr. Sevantee, Dr Anuja V R, Dr G Vaishnavi, Dr Sanskriti, Dr. Sayan for their unending support.

DECLARATION

I hereby declare that this dissertation titled "**EXPLORING ASSOCIATION BETWEEN ORAL HEALTH LITERACY AND ORAL HEALTH RELATED QUALITY OF LIFE IN ADULTS OF RURAL AREAS OF KADIPUR TAHSIL, UP**" is the bona fide record of my original research; it has not been submitted to any other university or institutions for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

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CERTIFICATE

Certified that the dissertation titled "**EXPLORING ASSOCIATION BETWEEN ORAL HEALTH LITERACY AND ORAL HEALTH RELATED QUALITY OF LIFE IN ADULTS OF RURAL AREAS OF KADIPUR TAHSIL, UP**" is a record of the research work undertaken by **Dr. Abhijeet Narayan Mishra**, in partial fulfilment of the requirements for the award of the degree of "Master of Public Health" under my guidance and supervision.

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ABBREVIATION

OHL	Oral Health Literacy
OHRQoL	Oral health related quality of life
OHIP	Oral health impact profile (tool for measuring Oral health related quality of life)
OHL-AQ	Oral Health Literacy Adult Questionnaire
IEC	Institutional Ethics Committee
SCTIMST	Sree Chitra Tirunal Institute for Medical Sciences & Technology

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ABSTRACT

Background: Oral health literacy is about developing skills which help us in understanding health information, we faced on daily basis and helps in taking appropriate health decision. Nowadays health sector is patient centric, so to improve quality of treatment and care provided by health system, patients concern, and experiences should be taken into account. Oral health related quality of life assessment help in doing that.

Methodology: A community based cross sectional study which include 374 participant aged 35-59 years from 22 randomly selected villages of the Kadipur tehsil using cluster random sampling method. Data analysis done using R.

Result: It is found that only around 41 percent of participant were having adequate level of oral health literacy. The median score of oral health related quality of life among people who had experienced oral health problem in last one year is more and the difference is statistically significant. The median score of the Oral health literacy of participants who had experienced oral health problem or condition in last one year is less than others. A negative association found between oral health literacy and various domains of oral health related quality of life including domain of physical pain, psychological discomfort, physical disability, social disability, even though these associations were weak but they were statistically significant.

Conclusion: Majority of people in community lack adequate level of oral health literacy. The study concludes that oral health related quality of life and oral health literacy, are negatively associated in the study community.

CHAPTER – 1

INTRODUCTION AND LITERATURE REVIEW

“Literacy is a bridge from misery to hope.”

Kofi Anan

1.1. INTRODUCTION

1.1.1. Background

Literacy, as defined in Census operation of India, is the “ability to read and write with understanding in any language. A person who can just read but cannot write is not classified as literate. Any formal education or minimum educational standard is not necessary to be considered literate”. (Ramamoorthy and Raman, 2001)

Now a new concept of functional Literacy has come up which not only just consider reading and writing of a person, but also focus on practical application of reading and writing ability in daily life situation. Functional literacy is required so that a person can function independently and effectively in the society (Berkman *et al*., 2010).

We are exposed to health-related information on daily basis which require our skill of reading, writing, speaking, listening, calculation and comprehending written text (CDC, 2023). These all skills help in our communication with health professionals and also help in taking appropriate health decisions (CDC, 2023). Every health decision use different amount and complexity of information (Berkman *et al*., 2010). Health literacy helps in taking health decisions, preventing health problems, protecting our health, and better management of health problems. (Berkman *et al*., 2010; CDC, 2023)

While giving instruction to patient or explaining the treatment, health provider throw many technical words which patient generally don't understand especially when they have limited health literacy (National Institute of Health (NIH), Summer2005). So, health literacy act as barrier in achieving desired health outcome.

Quality of life is an assessment that tell us how people feel about their health and how they feel about treatment and care provided to them (Haraldstad *et al*., 2019). This way, it helps provider and policy makers in finding gap in health care (Haraldstad *et al*., 2019).

People with limited oral health literacy have perceive their oral health related quality of life as poor (Das *et al*., 2023; Divaris *et al*., 2011; Parker and Jamieson, 2010). These studies have shown that oral health literacy is important factor influencing the way people look towards their life.

In India, studies have generally explored relationship of oral health status with oral health related quality of life (Das *et al*., 2020; Haridas *et al*., 2014; Singh *et al*., 2020). Study done in Uttar Pradesh by Das *et al*. explored Oral health related quality of life with Oral health literacy, but among patient coming to dental college. (Das *et al*., 2023)

So, this study explored relationship of Oral Health Literacy with Oral health related Quality of life in middle aged adult at the community level.

1.1.2. Oral Health

Oral health is not only affecting health and wellbeing of an individual, but also affect economic growth a nation (Ministry of Health and Family Welfare and National Health

Systems Resource Centre, 2020). Dental caries, periodontitis, oral cancer not only affect well-being of an individual but also decreases their economic productivity and in broader sense decrease productivity of the community (Ministry of Health and Family Welfare and National Health Systems Resource Centre, 2020). Oral diseases are directly linked with non-communicable diseases like diabetes, COPD, infectious disease like bacterial endocarditis (National Oral Health Cell, 2012).

Oral health is defined as "the state of the orofacial structures, mouth, and teeth that help people in performing essential functions like breathing, eating, and speaking, and also include ability to work and socialize without any discomfort, pain or embarrassment." (World Health Organization, 2024a)

1.1.3. Global Burden of Oral Disease

Among oral diseases; periodontal disease, dental caries, tooth loss, and cancer of oral cavity and lip are most prevalent(Peres *et al*., 2019). Oral disease also includes birth and developmental defect like cleft lip and palate, oral and dental trauma and dental fluorosis (World Health Organization, 2024a). As per WHO, between year 1990 to 2010 global prevalence of severe chronic periodontitis was 11.2 percent (Kassebaum *et al*., 2014).,

As per WHO, in non-communicable disease category, oral diseases are most widespread and affect almost half of population globally over their lifetime. (World Health Organization, 2022b)

Across the globe there is unequal access and distribution of oral health service and oral health professional (National Institute of Health (NIH), Summer2005). Prevalence of oral disease is high among people with less education, low income, immigrants, elderly, ethnic and racial minorities. (National Institute of Health (NIH), Summer2005).

1.1.4. Burden of Oral Disease in India

India is leader in tobacco consumption in world (World Health Organization, 2024b). Every year 1.35 million people are dying in India due to tobacco associated disease(World Health Organization, 2024b). In India 43.3% children between age one to nine years have untreated caries. Around 21 percent person above age of 20 years have severe periodontal disease (World Health Organization, 2022a) .

In India prevalence of dental caries high among all age groups. Half the children (52.5%) in age group of 12 have dental caries (Bali and Mathur, 2004). Most adults (79.2%) in India have dental, for geriatric population, prevalence of dental caries is 84 per cent. One fifth (24%) children in age group of 12 and 15 have malocclusion. (Bali and Mathur, 2004)

India has second largest number of oral cancer cases in the world and there is high mortality and morbidity associated with it (Gupta *et al*., 2013). Pre-cancerous lesion like leucoplakia are a public health concern as they can lead to oral cancer but timely intervention can prevent it from happening.(Bali and Mathur, 2004).

1.2. LITERATURE REVIEW

1.2.1. Health Literacy

Health literacy is “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions” (Ratzan et al., 2000). This include capacity to read and comprehend written text, communicate information related to health effectively, navigate health care system and attain and sustain good health (Baskaradoss, 2018) .

Health literacy help people to take decision for their own health and community and push government to address unmet need of health and health equity. Social, economic and environmental goal of SDG-30 can be met by increasing health literacy of people (Berkman *et al*., 2010).

Health literacy refer to the achievement of certain level of knowledge, personal skills that give confidence to take health decision for betterment of personal and community health (Nutbeam, 2000). Thus, health literacy not only ability to read prescription or pamphlets. It is also a mean for people to access health information, and thus, health literacy empower people to take decision about their life and health. (Berkman *et al*., 2010; Nutbeam, 2000)

1.2.2. Types of Health Literacy

As per Nutbeam, Health literacy can be classified as:

- Basic/functional literacy- It refer to skill of reading and writing which enable a person to function in daily life situation.
- Communicative/ interactive literacy: It refers to basic literacy along with cognitive and social skill which help the person in daily life activities and help in gathering and applying information in different situation.

- Critical health literacy: It refers to critically analyzing the information gather through interaction, using social and advance cognitive skill.

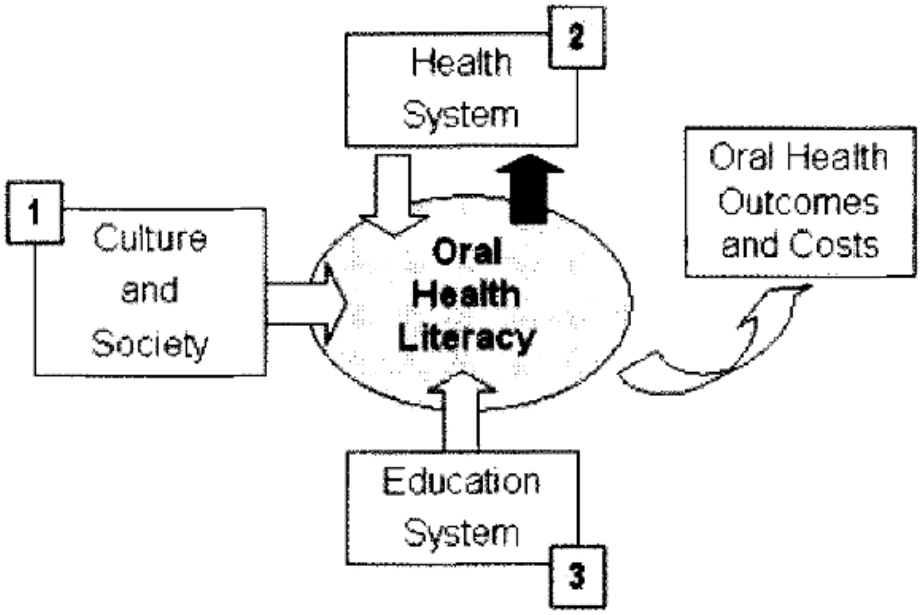
Critical health literacy gives a control over life situation (Nutbeam, 2000). A person moves through different level of literacy not only through their cognitive development but also through information they gathered during life time (Nutbeam, 2000).

Functional literacy is end product of traditional way of educating people about risk factors of diseases and giving information regarding the usage of health service (Nutbeam, 2000). Whereas interactive literacy focus on enabling people to act independently on information they gather through their interactions (Nutbeam, 2000). Critical health literacy not only leads to individual action but also social and political action (Nutbeam, 2000).

Health literacy is undeniably influenced by fundamental literacy levels and related cognitive development (Nutbeam, 2000). Individuals with undeveloped reading and writing skills not only have less exposed to traditional health education but also have underdeveloped skills to effectively act on the information they receive (Nutbeam, 2000). That is why, strategies aimed at promoting health literacy are inherently tied with broader efforts to enhance general literacy. (Nutbeam, 2000)

1.2.3. Oral Health Literacy

Oral Health literacy is not just about obtaining information, but is also about understanding and using that for prevention and timely treatment of disease (Horowitz and Kleinman, 2012). It also about applying information for selfcare, care of family member and community (Horowitz and Kleinman, 2012). So, it is foundation skill required in care givers and also required for maintaining personal health (Horowitz and Kleinman, 2012a).



Source: Adapted from Institute of Medicine. Health literacy: A prescription to end confusion: Executive summary; 2004, p. 5.

***Figure 2.1** , Oral health Literacy act at intersection of society, culture, health system, education system and oral health outcome. (National Institute of Health (NIH), Summer2005)*

As per National Institute of Health (USA) as shown in above figure -1.1, Oral health Literacy act at intersection of society, culture, health system, education system and oral health outcome. (National Institute of Health (NIH), Summer2005)

When people have low health literacy, they show low level knowledge and understanding regarding health condition and use health care in emergency conditions and end up more in hospitalization.(Berkman *et al*., 2011)

Limited health literacy results in reduced ability of correctly administrating the drug, decrease in reading and understanding of drug labels, and comprehending health-related information(Berkman *et al*., 2011). Also, lower health literacy is related with increase in mortality and poorer health status in older adults (Berkman *et al*., 2011). So, limited oral health literacy cause oral health disparities which mainly affect marginalized section of society (Dickson-Swift *et al*., 2014).

1.2.3.1 Oral Health Literacy and Oral Health Care Service Utilisation

Study done in Brazil by Batista *et al*. show that, people with low OHL use dental services only in emergency and only when they have pain and they evaluate dental service provided to them as not good. 32.4 percent people reported not to have necessary oral health information (Batista *et al*., 2017). This shows lower the oral health literacy lowers the utilisation of dental services and less satisfaction with oral health care services. Ueno *et al*. study in Japanese adult found that lower the oral health literacy poor the clinical status of oral cavity that is more decayed teeth and a smaller number of natural teeth (Ueno *et al*., 2013).

1.2.3.2. Oral Health Literacy and Oral Health Status

In India, study conducted by Agrahari *et al*. among college student using REALD-99 (this tool measure oral health literacy by taking reading and numeracy into account) found statistically significant association between Oral health literacy and oral health status (Agarahari *et al*., 2023). In another study done by Das *et al*., also found strong negative correlation between oral health literacy and oral health. People with low oral health literacy have more tooth loss, gingival bleeding and pocket formation (Das *et al*., 2020). Similar finding were also found in among Caucasian and Afro- American where 33 percent people with low OHL found to have severe periodontitis whereas only 9 percent people with adequate OHL had severe periodontist (Baskaradoss, 2018).

People with enough oral health literacy recognised dental disease at early stage and also take early action for its treatment (Baskaradoss, 2018).

1.2.3.3. Oral health literacy and year of Schooling

Apolinario *et al.* found 30 percent of adults with higher school education had low health literacy whereas 17 percent people with only zero to four years of school had adequate health literacy. They conclude that health literacy doesn't depend on years of schooling (Apolinario *et al*., 2012). However, limitation of study was that they had used the tool which only take into account only reading skill and convenient sampling was done to recruited the people, so result could not be generalised over the population

But study done in Brazil by Batista et al found that less the year of schooling lower the oral health literacy (Batista *et al*., 2017; Naghibi Sistani *et al*., 2014). Batista et al also found that higher the oral health literacy lower is the biofilm formation.

1.2.3.4. Oral health literacy and Oral Health Behaviour

Study done by Ueno *et al*. In Japan, reveal that oral health literacy is positively associated with oral health behaviour, more the oral health literacy more they take care of their oral hygiene and brush their teeth regularly (Ueno *et al*., 2013)

1.2.3.5. Oral Health Literacy and Socio-economic Status

Studies found that people belong lower socio-economic status (which include education, occupation and income) have low oral health literacy (Batista *et al*., 2017; Das *et al*., 2020). Reason could be due to less access to resources through oral health literacy can be acquired.

1.2.3.6. Oral Health Literacy and Age

Prevalence of oral health literacy is higher in school teacher aged 20-30 compared to school teacher of other age group. (Aldowah *et al*., 2023) (VYAS* *et al*., 2016) Similar finding

were also found in study done by Jagan *et al*. where odd of good oral health literacy among teachers less than 35 years was 1.74 times more compare to odd of poor oral health literacy in below 35 years age group (Jagan *et al*., 2018). So, age is also a determinant of oral health literacy

1.2.4. Quality of life

Quality of life is defined by the WHO as "individuals perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns". (World Health Organization, 2023)

Understanding QOL can help in improving care, treatment and rehabilitation of patients (Haraldstad *et al*., 2019). Self-reported QOL of patients will reveal problem faced by them during their treatment, care and rehabilitation and will help in making necessary changes. (Haraldstad *et al*., 2019).

1.2.4.1. Quality of life and Oral Health

Quality of life a dynamic concept as peoples' attitude and experience changes over lifetime. (Allison *et al*., 1997). Quality of life for health conditions tell us the impact of disease and treatment on life of patient and hence reflect person perception towards the life (Haraldstad *et al*., 2019).

1.2.4.2. Oral Health Literacy and Oral Health related Quality of life

Study done in Ghaziabad (Das *et al*., 2023) among patient who came for dental visit found highly statistically significant inverse relationship between, oral health related quality of

life and Oral Health Literacy (OHL) scores. In other words, as OHL scores decrease, oral health related quality of life decrease significantly (Das *et al*., 2023).

1.2.5. Tools for Measuring Oral Health Literacy and Oral Health related Quality of Life

Oral health literacy includes not just reading but also writing, speaking and listening but also decision making (National Institute of Health (NIH), Summer2005; Nutbeam, 2000; Sørensen *et al*., 2012). There are two types of tests, word recognition and comprehension test. Word recognition test check ability of read and familiarity test whereas comprehension test check capability of understanding the text materials (Ueno *et al*., 2013).

As per Sorenson, health literacy is multidimensional and it encompasses skill related to acquiring, comprehending, evaluating and applying health related information for health promotion, disease prevention and health care utilization (Sørensen *et al*., 2012) .

Most Oral health literacy tool just measure the basic skill of oral health literacy involving reading comprehension, word recognition and numeracy, only one study done in Tehran OHL-AQ include decision making dimension of health literacy (Ghaffari *et al*., 2020).

Incorporating decision making and service navigation aspect can increase validity of oral health literacy tool (Dickson-Swift *et al*., 2014).

Popularly used tool for measuring oral health literacy are derived from health literacy tool the Test of Functional Health Literacy in Adults (ToFHLA) (Parker *et al*., 1995) and Rapid Estimate of Adult Literacy in Medicine (REALM) (Davis *et al*., 1993).

REALM only measure reading and word recognition ability of patient and ToFHLA measure reading comprehension of patients (National Institute of Health (NIH), Summer2005).

Oral health literacy should able to measure reading, writing, numeracy, listening, speaking and understanding of people with psychometric analysis. (National Institute of Health (NIH), Summer2005) (Dickson-Swift *et al*., 2014; Nutbeam, 2000; Sørensen *et al*., 2012)

1.2.5.1. OHL-AQ

This tool was developed by Naghibi Sistani *et al*. has been widely used to assess oral health literacy. It covers questions on reading comprehension, listening, numeracy and decision-making skill (Naghibi Sistani *et al*., 2014). OHL-AQ tool is also validated in Hindi (VYAS* *et al*., 2016). For Hindi version Cronbach alpha was 0.83 (VYAS* *et al*., 2016).

1.2.5.2. OHIP-14

It was developed by Slade used to assess the oral health related quality of life. It has 14 questions which covers 7 domains of oral health relate quality of life. Cronbach's a for this set of 14 questions in original study was 0.88. Responses will be recorded on a Likert-type scale and coded 4="very often", 3 = "fairly often", 2 = "occasionally", l="hardly ever" and O="never" (Slade, 1997).

Weightage is given to each domain. In order to get score of each domain multiply it with coded response (ranging from zero to four) that has given across question of those domain. Total sum can be obtained from adding scores of each domain. (Slade, 1997).

1.2.6. Rationale of study

In India, studies have generally explored relationship between oral health related quality of life with Oral health status (Das *et al*., 2020a; Haridas *et al*., 2014; Singh *et al*., 2020). Some studies tried to find out relationship between Oral health literacy and oral health knowledge

and behavior (Muralidharan *et al.*, 2019; Sukhabogi *et al*., 2020). Studies done in India exploring Oral health literacy with Oral health related quality of life, have explored only in patient coming to dental college and has not done at community level (Das *et al*., 2023). Furthermore, not many have studied the relationship of Oral Health Literacy with Oral health related Quality of life in middle aged adult.

So, this study will explore relationship of Oral Health Literacy with Oral health related Quality of life in middle aged adult at the community level.

CHAPTER – 2
MATERIALS AND METHODS

2.1. Study Objective

- To estimate Oral health literacy in adults aged 35-59 years in Kadipur tehsil, district Sultanpur, UP.
- To study the association of Oral Health Literacy with Oral Health-related Quality of life in adults aged 35-59 years in Kadipur tehsil, district Sultanpur, UP.

2.2. Research question

Estimate Oral Health Literacy and its association with Oral Health-related Quality of life in adults aged 35-59 years in Kadipur tehsil, district Sultanpur, UP.

2.3. Study Design

This was a quantitative cross-sectional study that explored association between Oral Health Literacy and Oral Health-related Quality of life in adults in rural areas of Kadipur Tahsil, UP

2.4. Study Setting

The study was conducted in Kadipur tehsil, district Sultanpur, Uttar Pradesh. This study was designed as a household-level survey, using cluster random sampling method.

2.5. Study Population

Adults of 35-59 years of age in Kadipur Tehsil, district Sultanpur, UP.

Inclusion Criteria

Resident villager (living there for the past six months) in the age group of 35-59 years who were literate (as stated by the person). Literacy is associated with oral health literacy, as

foundational skills such as reading, writing, and numeracy are essential for developing oral health literacy. So, in this study, the PI had included only individuals who self-reported the ability to read and write in the local language (Hindi).

Many previous studies that have measured oral health literacy were focused on the age group 18-64 for the study, where decision-making varied significantly and had not been captured in its true essence. Also, in the large age group 18-64, age itself acts as a confounder for oral health-related quality of life and oral health literacy.

In this study, the principal investigator (PI) aimed to explore the association of oral health literacy with oral health-related quality of life. Middle-aged people have the maximum power of decision-making. Although the definition of middle age is not clearly defined in the literature, on average, it is considered to be between the age group of 40-60 (Lachman *et al*., 2015). Individuals aged 60 and above are more likely to have other oral and systemic diseases, which may influence the measurement of oral health-related quality of life. As the definition of middle-aged adults is not fixed, the PI had taken the liberty to define the middle-aged group as 35-59 to include enough people for the study. Thus, PI had considered literate people aged 35-59 for this study.

2.6. Sample Size Estimation

The anticipated prevalence of Oral health literacy is 20% (Das *et al*., 2020). With a 95% confidence interval and margin of error as 0.05, p= 0.2 and q=0.8, using formula $(1.96)^2 * p * q / d^2$, the sample size comes out to be 245.76. As cluster sampling was planned, a design effect of 1.5 was used to inflate the sample size as 368.64, which is rounded off to get the final sample size of 369.

In this study, the village was taken as a cluster. Respondents in the same cluster are likely to be similar to each other. As a result, the sample would not be as varied as in random

sampling. So, to compensate for this ineffectiveness in sample size, a design effect was used. A design effect of 2 will give a sample size of 492, which is not feasible to complete in 2 months, so a design effect 1.5 is taken arbitrarily.

2.7. Sampling Method

A cluster sampling strategy was used to enrol participants, villages being the clusters. The list of villages in Kadipur tehsil was obtained from the district Sultanpur website. The Kadipur tehsil has 376 villages; using the random generator in the R program, 22 villages were selected out of the list of 376 villages. From each village, 17 eligible people were randomly selected.

2.8. Sample Selection Procedure

The list of villages in Kadipur tehsil was obtained from the district Sultanpur official website. Using the random generator in the R program, 22 villages were selected out of a list of villages. In the selected village, the PI proceed to the central or junction point of the village to get the direction for movement. To ensure a random approach, the pen was spined and moved in the direction indicated by the pen cap. The first household surveyed was the nearest one, followed by every second household on the left of the preceding one until 17 eligible participants were obtained in the village. From each household, only literate individuals aged 35-59 were selected. The next second household was selected if no eligible participants were present at the household level. At the household level, one eligible participant was chosen. In cases where there was more than one eligible participant in a household, the one with the nearest birthdate to the survey date was selected.

2.9. Data Collection Procedure

The study was done in the months of January and February. A list of 376 villages in Kadipur tehsil was obtained from the district Sultanpur website. R (programming language) code

was used to generate a random list of 22 villages. From each of the selected villages, 17 households were selected by systematic random sampling. From each household, only individuals aged 35-59 was selected. The PI provided a physical copy of the Hindi information sheet and read it to the participant. Participants were given 5-10 min to read both the information sheet and consent form and decide. If the participant had shown unwillingness to participate, PI had pursued them. PI asked the participant to repeat their understanding regarding the study and again informed them about their right to withdraw from the study at any point in time. Participants were provided with a consent form and asked to read it and after reading, sign it only when, they were sure. A physical copy of the questionnaire was provided to the participants. Participants were asked to fill out an Oral literacy and oral-related quality of life questionnaire, and their doubts were cleared.

2.10. Study Tools

Study tools had two components, one interview schedule and a self-administered questionnaire. The interview schedule was administered by the investigator and that included information on sociodemographic and oral health care utilization.

The second component had two sections, the first section which was self - administered questionnaire covered oral health literacy questionnaire [reading comprehension, numeracy and decision-making skill were assessed through self-administered questionnaire whereas listening skill was assessed through interviewer administered questionnaire] using Oral Health Literacy Adult Questionnaire– self-administered Questionnaire (OHL-AQ) tool which was validated in Hindi. The second section in the self-administered questionnaire which assess oral health related quality of life using Oral health impact profile 14 (OHIP-14) tool which was validated in Hindi.

Section A- Interview schedule

It has following parts

Sociodemographic questions - It include question on age, economic status, family monthly income.

Utilisation pattern questions- It include questions on frequency of visit to dentist by participant, preferred dental treatment centre, reason for last visit to treatment centre, reason for not visiting dentist.

Section B- Oral Health Literacy Adult Questionnaire (OHL-AQ) tool

As per Sorenson, health literacy is multidimensional and it encompasses skill related to acquiring, comprehending evaluating and applying health related information for health promotion, disease prevention and health care utilisation (Sørensen *et al*., 2012). Most Oral health literacy tool just measure the basic skill of oral health literacy involving reading comprehension, word recognition and numeracy, only one study done in Tehran **OHL-AQ** include decision making dimension of health literacy (Ghaffari *et al*., 2020). Dickson -Swift *et al* stressed for inclusion of decision making in oral health literacy tools (Dickson-Swift *et al*., 2014).

Oral Health Literacy Adult Questionnaire (OHL-AQ) tool has been widely used to assess oral health literacy. It covers questions on reading comprehension, listening, numeracy and decision- making skill. OHL-AQ tool was also validated in Hindi by Vyas et al (VYAS* *et al*., 2016). Hindi version was internally consistent with Cronbach alpha 0.83 (VYAS* et al., 2016). OHL-AQ scores was categories into the three categories: inadequate, 0–9; marginal, 10–11; and adequate, 12–17. Full questionnaire could be seen in Annexure I.

Section C- Oral Health Related Quality of Life (OHIP-14) tool

Oral Health Impact -14 (OHIP-14) used to assess the oral health related quality of life. It has 14 questions which covers 7 domains of oral health relate quality of life. Cronbach's alpha of OHIP- 14 in original study was 0.88. In Hindi version, it was internally consistent with Cronbach alpha 0.83 (Batra et al., 2015). In original tool responses were recorded on a Likert scale and coded as 4="very often", 3 = "fairly often", 2 = "occasionally", l="hardly ever" and O="never" (Slade, 1997). But in Hindi version response were coded as 0 = “don’t know”, 1= “never”, “hardly ever”, 2= “occasionally”, 3= “fairly often” and 4 = “very often”. Response in this study were recorded as per Hindi version and during analysis it was found that only two participants responded don’t know so they were excluded from analysis and scores were recoded as per original tool.

They are two ways of scoring in oral impact profile- 14, first is, additive method (where score against each question is added) and second is scoring with weights of questions. In original tool it was suggested to use weights of question while doing scoring. As per author of original tool (Slade, 1997) weight were developed after considering lay person judgement on severity of oral diseases. This study also followed scoring criteria as given in original tool (Slade, 1997). All 14 question had weights, response of each question (ranging from 0 to 4) was multiplied with weights of question to get weighted score of the question and then it was summed with weighted score of another question of same domain to get domain score. Domain score was standardized and then standardized domain scores were added to get overall score of the participant. Table 2.1 shows original OHIP-14 tool questions developed by (Slade, 1997).

Table 2.1 Oral Health Impact Profile- 14 (Oral Health Related quality of life measuring tool)

Domain	Item	Weightage score
Functional limitation	Have you had trouble in pronouncing words because of problem with your teeth, mouth or denture	0.51
	Have you felt sense of taste worsens because of problem with your teeth, mouth or denture	0.49
Physical pain	Have you had pain in teeth or jaw because of problem with your teeth, mouth or denture	0.34
	Have you uncomfortable to eat any food because of problem with your teeth, mouth or denture	0.66
Psychological discomfort	Have you been self-conscious because of problem with your teeth, mouth or denture	0.45
	Have you felt tense feeling because of problem with your teeth, mouth or denture	0.55
Physical disability	Have your diet been unsatisfactory because of problem with your teeth, mouth or denture	0.52
	Have your diet had to interrupt meal because of problem with your teeth, mouth or denture	0.48
Psychological disability	Have you found difficulty in relax because of problem with your teeth, mouth or denture	0.60
	Have you been bit embarrassed because of problem with your teeth, mouth or denture	0.40
Social disability	Have you been bit irritable with others because of problem with your teeth, mouth or denture	0.62
	Have your difficulty in doing usual jobs others because of problem with your teeth, mouth or denture	0.38
Handicap	Have you felt that life in general was less satisfying with life because of problem with your teeth, mouth or denture	0.59
	Have you been totally unable to function because of problem with your teeth, mouth or denture	0.41

2.11. Data Storage and Data Analysis

The signed consent sheets safely preserved by PI for period as per regulatory requirement under the supervision of guide. PI had analysed data using the R version 4.3.1. under the supervision of the guide. Firstly, regarding questions of oral health related quality of life, only two people responded “don’t know” for some questions, so they were excluded from

the study and analysis was done on 372 participants. Socio-demographic, Past dental history and utilisation pattern variable were described by frequency and percentage. Relationship of socioeconomic variables with oral health literacy and oral health related quality of life was analyse through Kruskal Wallis test (oral health literacy and oral health related quality of life scores were considered as numeric variables but they were not normally distributed. The association of oral health literacy and oral health related quality of life was explored through Spearman's rank correlation.

2.11.1. Study variable

For 1st Objective

- **Dependent Variable**: Score of Oral Health Literacy (OHL). Oral Health literacy has 17 questions and the scores are categorized to "inadequate", "marginal", and "adequate".
- **Independent Variable**: Socio-demographic variables and past dental history

For 2nd Objective

- **Dependent Variable:** Scores of oral health related quality of life as assessed using OHIP-14 tool. It has 14 questions and seven domains.
- **Independent variable:** Score of oral health literacy**,** past dental history and socio-demographic variables.

2.12. Ethical Consideration

The study was started after getting approval from the Institutional Ethics Committee of Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum. Participants were provided with copies of patient information sheet and consent form. Patient information sheet contains contact details of member secretary of the Institutional Ethics Committee and that of the principal investigator.

Participants were briefed about objectives of study and were told that their participation in study was voluntary and they could withdraw themselves from study at any point of time and it would not bear any consequences. Participants were asked to repeat their understanding and after verifying that they were requested to sign on the consent form. Participants were also told that they have the right to ask any question or clarification related to study.

Participant privacy and confidentiality was considered as priority concerns by the PI and in order to maintain anonymity a unique identification number was allotted to each questionnaire. After three years of data collection, the hard copies of questionnaire would be disposed of. The PI will keep the hard copies of all relevant documents till the completion of the stipulated time period (three years) under his safe custody.

2.13. Funding

This was a student dissertation, self-funded by the student, and had not received funding from any institution/agencies.

CHAPTER -3

RESULTS

The chapter presents the findings of the analysis which was done according to the objectives of the study. Data was collected from 374 persons from 22 villages with 17 participants in each village. Out of 374, two participants, had not given sufficient data for outcome variable so they were excluded from analysis. Analysis has been done on 372 participants using R version 4.3.1.

3.1. UNIVARIATE ANALYSIS

3.1.1. Sociodemographic characteristics

The mean age of the participants was median 45 (IQR= 14). Men constitute 260 (69.82%) of the participants.

Table 3.1: Distribution of participants by education and sexes

Characteristics N=372	**Men N=260**		**Women N = 112**		**Total N=372**	
Education	n	(%)	n	(%)	n	(%)
Primary Education	38	(14.61)	25	(22.32)	63	(16.94)
Upper Primary Education	34	(13.07)	18	(16.03)	52	(13.98)
*****	95	(36.53)	26	(23.21)	121	(32.52)
Senior Secondary Education	93	(35.79)	43	(38.4)	136	(36.5)
Graduation or Higher						
Total	260	(100)	112	(100)	372	(100)

* *Refer to education from class sixth to class eighth*

Table 3.1 shows distribution of participants across education level and sexes. As shown in Table 3.1, in general women tend to have higher levels of education, compared to men.

Table 3.2 Distribution of participants by family monthly income and sexes

Characteristics N=372	Categories	Total N=372 n (%)	
Family Monthly Income (self-reported)			
	<5000	272	(73.11)
	5000-10000	55	(14.79)
	>10000	45	(12.10)
	Total	372	(100)

Table 3.2 shows that majority of participant around 73 percent have family monthly income less than five thousand rupees. Only around 12 percent of participant were reported to earn more than ten thousand rupee a month.

3.1.2. Oral Health issues in last one year

Table 3.3 Distribution of oral health problem across sex

Variable		Male N= 260 n (%)	Female N=112 n (%)	Total N=372 n (%)
Experiencing oral problem or condition in last one year	Yes	69 (26.54)	41 (36.61)	110 (29.60)
	No	191 (73.46)	71 (63.39)	262 (70.40)

As detailed in Table 3.3, one third of the respondents had some kind of dental problem/condition in the last one year, and women had more issues compared to men (36.6% vs. 26.5%).

3.1.3. Dental Utilisation Pattern

Table 3.4 Frequency of visit to dentist across gender

Frequency of visit to dentist	Men (260)		Women (112)	
	n	%	n	%
Never	134	51.5	42	37.50
once in a year	49	18.84	27	24.10
More than once in a year	77	29.61	43	38.39

Among men about more than half (51%) had never visited a dentist (refer table 3.4). Only 1.6 percent of people used to go to a dentist for routine checkup.

Around 51 percent of participants visited dentist either due to decayed tooth or due to swel ling in mouth or due to mobile teeth. Around 47 percent of participant prefers going to pri vate clinic.

Table 3.5 Preference of treatment centre across gender

Preferred treatment centre	Men (260)		Women (112)	
	n	%	n	%
Government hospital	47	(18.07)	19	(17.29)
Private dental clinic	106	(40.76)	64	(58.18)
others	10	(3.84)	2	(1.87)
Never visited	97	(37.30)	29	(26.36)

Women had more preference to private clinic compared to men. Around 58 percent of women visited private clinic dentist whereas only around 40 percent men preferred going to private clinic dentist (refer table 3.5)

3.1.4. Oral Health Literacy

Oral health literacy data was collected using the validated Hindi version of oral health literacy tool which was self-administered by participants. The overall median score (IQR = 4) was 11.

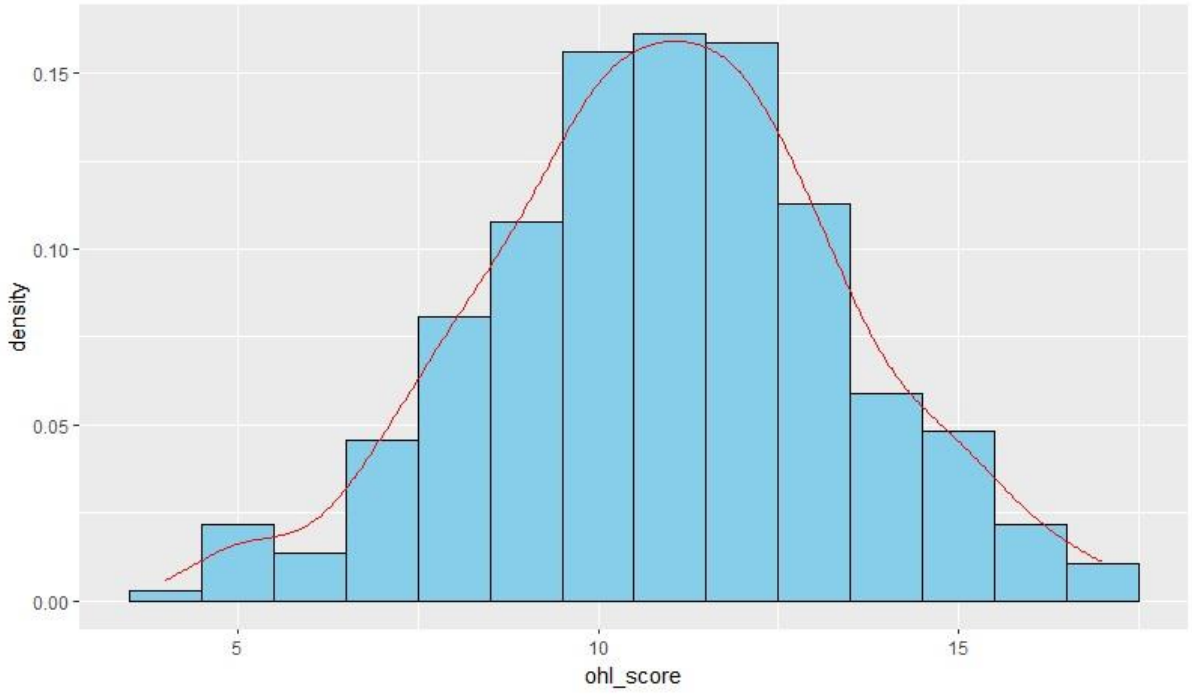


Figure 3.1: Frequency distribution of Oral Health Literacy Score

The categorisation of oral health literacy score, as specified in the tool is given in Table 3.6)

Table 3.6 Distribution of Oral health literacy score

Oral Health Literacy Score (N=372)	**n**	**(%)**
Inadequate	101	(27.15)
Marginal	120	(32.25)
Adequate	151	(40.59)

It was found that only around 41 percent of participant were having adequate level of oral health literacy whereas around 27 percent participant had inadequate level of oral health literacy (refer table 3.6).

Distribution of oral health literacy score is left skewed and not normally distribution. So, while analysing with oral health literacy we could apply non parametric test (refer fig 3.1). Shapiro Wilk test was also done to check normality of distribution, Shapiro wilk test gave

significant p value (0.0002) denoting that oral health literacy was not having normal distribution. Therefore, non-parametric test was used for oral health literacy score

3.1.5. Oral health related quality of life

Oral health related quality of life was measured through self-administered Oral health impact profile -14 questionnaire (OHIP-14). Figure 3.2 depicts its values across all items.

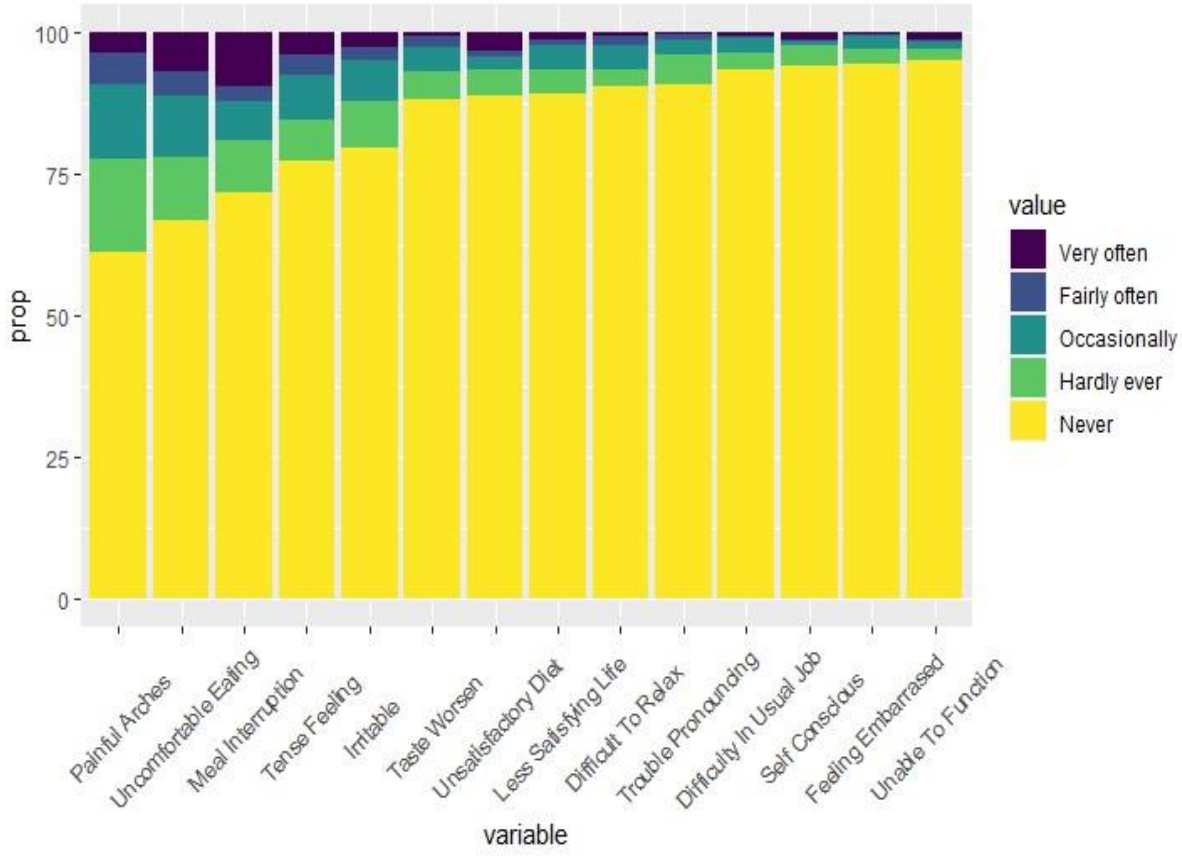


Figure 3.2: Proportion Distribution of response on Oral Health Related Quality of life

Across all domains of Oral Health related Quality of life, majority of participant responded as ‘never’ which means that they never experienced this oral health condition or problem in past one year.

Table 3.7 Analysis of participant reporting negative impact of oral issues

Domain	Item	% of participants reporting negative impact of oral issues*	% of participants reported negligible
Functional limitation	trouble in pronouncing words	4.03	95.97
	sense of taste worsens	6.98	93.02
Physical pain	Painful arches (pain in jaw or teeth)	22.31	77.69
	Felt uncomfortable while eating	22.04	77.96
Psychological discomfort	Got self-conscious	2.15	97.85
	Tense feeling	15.32	84.68
Physical disability	Unsatisfied with diet	6.45	93.55
	Had to interrupt meal	19.08	80.92
Psychological disability	Difficulty in relaxing	6.45	93.55
	Felt embarrassed	2.95	97.05
Social disability	Got irritated	3.76	96.24
	Difficulty in doing routine work	12.09	87.91
Handicap	Less satisfying with life	6.45	93.55
	Totally Unable to function	2.95	97.05

* *Combined values for those responded as 'occasionally', 'fairly often' and 'very often'*

Those people who responded as 'occasionally', 'fairly often' and 'very often' indicate negative impact of these oral health condition or problem on their perceived quality of life in last 12 months are reported on Table 3.7. Those people who reported that their life is getting affected by oral disease, they recognise it when their meal is getting interrupted or when they felt uncomfortable while eating due to oral disease. Some people also felt

negative impact on oral health related quality of life whenever they had pain due to oral issues.

As shown in Table 3.7, varying percentages of respondents had reported experiencing negative impact of dental problem in all domain of oral health related quality of life. Domain of physical pain, psychological discomfort, physical disability and social disability shared major chunk. Within physical pain dimension nearly 22.31 percent people have reported experiencing painful aches and 22.04 percent people reported that their oral health related quality of life lowered due to uncomfortable experience while eating food. Nearly 19.08 percent people experience meal interruption as negative impact on their oral health related quality of life (refer table 3.7).

Participant had also perceived the psychological impact of oral disease; 15 percent people get tensed due to oral disease and nearly two percent participant became self-conscious due to oral problem or condition (refer table 3.7)

Composite Score of Oral Health related quality of life

Scoring of oral health related quality of life was done through weighted method of scoring. Weightage was given with OHIP tool against each item. Response obtained against each were score from 0-4 {from 'never' (score 0), 'hardly ever' (score 1), 'occasionally' (score 2), 'fairly often' (score 3) and 'very often' (score 4)}. Each response scores were multiplied with weightage of each question. Scores so obtain were added to get domain score. Then domain score was standardised. Scoring is explained in below steps.

Step I

Individual Domain score (x) = Q_x * (weightage score for Q_x) + Q_y * (weightage score for Q_y)

Step II

Standardising of domain scores using formula

Standard score of domain = (x-mean of x)/standard deviation of x

Composite score of a participant = sum of all 14 standardised domain score.

Response obtained from participant against each question were coded as numeric and then it was multiplied with pre-assigned weights (OHIP- 14 tool contain weights for each question) to get the scores. Scores of each question were added to score of other question of same dimension to get score of dimensions. Score of dimensions were then standardised (mean 0 and standard deviation as 1) to get standardised domain score.

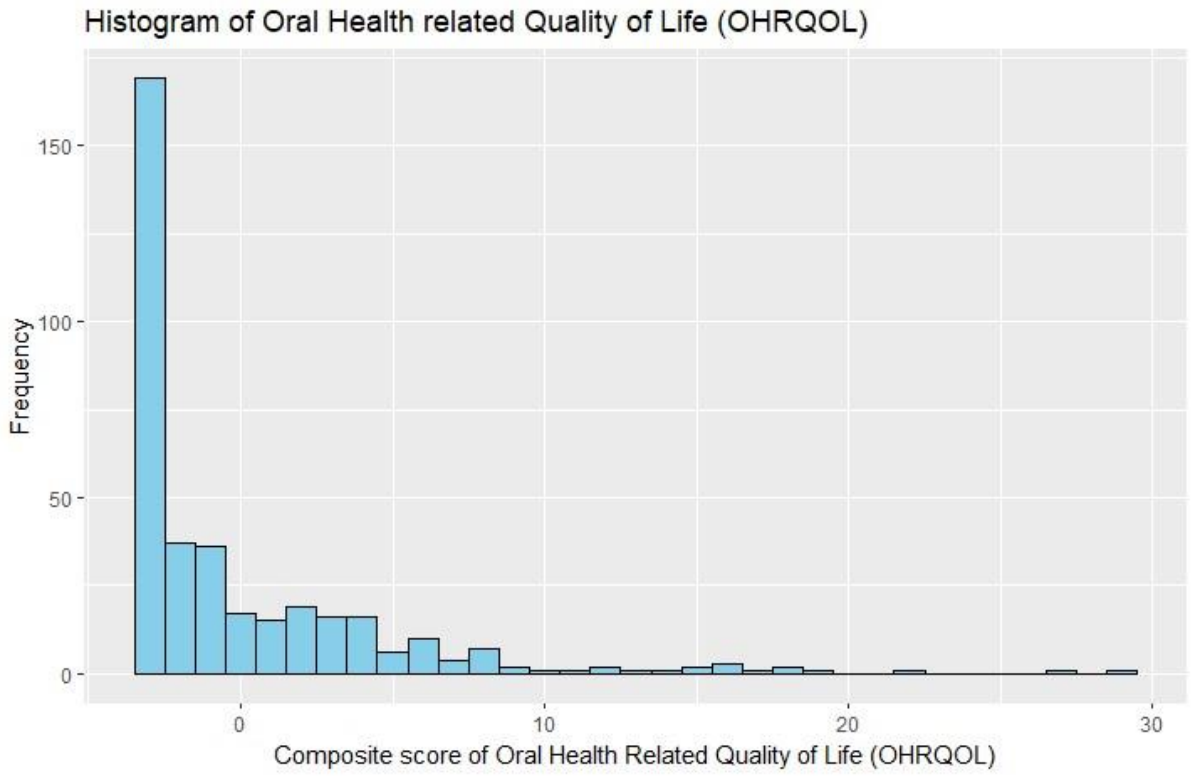


Figure 3.3: Composite score of Oral Health Related Quality of Life

Mean score indicates severity of impact of oral disease and it took into account full range of response for each question. Higher the score of OHIP-14, worse the oral health related q uality of life. Overall impact of oral problem or condition is highest for

'Physical disability' which contain question of meal interruption and unsatisfactory diet.

So, this result shows that people had mostly felt that due to their oral health issues they are unable to eat unsatisfactory food and have faced interruption in their meal.

Oral health related quality of life scores was continuous in nature. Decision for statistical t est could be only taken after assessment of nature of distribution of data. Figure 3.3, show highly skewed distribution of oral health related quality of life score which indicate that Only non-parametric test can be applied with this score Oral health related quality of life ranges from -2,57 to 29.23 with median -1.933, and interquartile range of 4.28.

3.2. BIVARIATE ANALYSIS

3.2.1. Comparing socio-economic status with oral health literacy score

Table 3.8: Comparing Education and Economic status with mean score of Oral health literacy

Oral Health Literacy score		
Variable	**Median (IQR)**	**p- value**
Education		
Primary Education	10.0 (3.5)	$5.414 \times 10^{-08*}$
Upper Primary Education	10.5 (4.0)	
Senior secondary education	11.0 (2.0)	
Graduate or higher	12.0 (3.0)	
Family Monthly Income		
<5000	11.0 (3.0)	0.1926*
5000-10000	11.0 (3.0)	
>10000	12.0 (3.0)	

*Kruskal Wallis test

Education

Table 3.8 shows that variable education has several levels and median score of Oral health literacy score and standard deviation differs across the level. When Kruskal Wallis test was done for variable Education had p value 0.0000015 (which is less than chosen significance level of 0.05) which is very small, which indicate that there is statistically significant

evidence to reject the null hypothesis (which state that there is no difference between median of oral health literacy score across different level of education) and we can conclude that there is statistically significant difference in median of oral health literacy score at least across two levels of education.

Family monthly income

Table 3.8, depicts a raising trend of OHL with education, however it was not statistically significant.

3.2.2. Comparing Oral health related quality of life across socio-economic groups

Negative association for OHQOL were seen with education and family income as shown in Table. 3.9. In order to test the significance of this association, Kruskal Wallis test was done keeping in mind that OHRQOL is not normally distributed.

Table 3.9 Comparing Oral health related quality of score by socio - economic status

Variable	Oral health related quality of life score	
	Median (IQR)	**p- value**
Education		
Primary Education	-0.85 (5.72)	0.0857*
Upper Primary Education	-1.47 (4.72)	
Secondary	-2.57 (3.52)	
Graduate or higher	-2.07 (2.97)	
Family monthly Income		
<5000	-2.10 (4.76)	0.2031*
5000-10000	-2.74 (3.22)	
>10000	-3.06 (3.17)	

**Kruskal Wallis test*

For both education and family monthly income, p-value is insignificant, which indicate that we have insufficient evidence to reject null hypothesis and can conclude that median value of oral health related quality of life doesn't varies across groups of education and family monthly income (refer table 3.9). So, the apparent associations of education and family monthly income with OHQOL were not statistically significant.

3.2.3. Comparing median of oral health literacy score across participant with oral health issues

Table 3.10 Comparing median of oral health literacy score across group of history of dental problem in last one year

Variable		Oral Health Literacy score	
		Median (IQR)	p-value
Experiencing oral problem or condition in last one year	Yes (110)	10 (3)	0.1528*
	No (262)	11(4)	

**Mann Whitney U test*

Table 3.10 shows that people who experienced oral problem in last one year had positive median score and those who didn't experienced oral problem also had positive median score, also, p value as 0.1528 which indicate that there is statistically insufficient evidence to reject null hypothesis (which states there is no difference in median score of Oral health literacy of participants who experience oral health problem or condition in last one year and those who didn't experience in last one year). So, we can say that median score of oral health literacy score didn't differ and whatever difference is observed, probably occur by chance. So oral health literacy of person is not influencing their oral health related quality of life.

3.2.4. Comparing median of oral health related quality of life across participant with oral health issues

Table 3.11 Comparing median of Oral health related quality of life score across group of history of dental problem in last one year

Variable		**Oral health related quality of life score**	
		Median (IQR)	p-value
Experiencing oral problem or condition in last one year	Yes (110)	1.14 (5.96)	4.82×10^{-14}
	No (262)	-2.57 (2.09)	

**Mann Whitney U test*

Participant who experiences oral problem in last one year had positive median score of oral health related quality of life whereas those who didn't experience it had negative median score (refer table 3.11). In order to know if observed difference in median is statistically significant or not Mann Whitney u test was performed. As p value is small than chosen level of significance of 0.05, there is statistically significant evidence to reject null hypothesis and to say that there is statistically significant difference in median score of oral health related quality of life between people who experience oral health problem in last year and those who didn't.

3.2.5. Analysing relationship between Oral health literacy and oral health related quality of life

Both oral health literacy score and oral health literacy quality of life is showing skewed distribution. Oral health literacy score is a numerical variable and oral health related quality of life was also scored so it can be treated as numerical variable. So, in order to know association between them, Spearman's rank correlation was performed.

Table 3.12 Spearman's rank correlation associating Oral health literacy with Oral health related quality of life

		Spearman Correlation Coefficient	**p- value**
Variable		**Oral health literacy score**	
Oral health related quality of life Score	Functional limit	0.05012[c]	0.335
	Physical pain	-0.14056[c]	0.006
	Psychological discomfort	-0.1183[c]	0.022
	Physical disability	-0.1553[c]	0.002
	Psychological disability	0.0179[c]	0.729
	Social Disability	-0.1139[c]	0.027
	Handicap	-0.1464[c]	0.004

[c] spearman's rank correlation,

They seem to have a negative correlation. More the oral health related quality of life score worse is oral health related quality of life.

Domain of 'Physical pain', 'Physical disability', 'Psychological discomfort', 'social disability' and 'Handicap' shows negative correlation that means as oral health literacy increases the oral health related quality of life score decreases (oral) and as this value is very close to zero it means strength of rank correlation is very weak for these domains. Even though monotonic relation is weak, but it is statistically significant for all these

domains, which mean that there is statistically enough evidence to say that there is an association of oral health literacy with domain of ‘Physical pain’, ‘Physical disability’, ‘Psychological discomfort’, ‘social disability’ and ‘Handicap’ (refer Table 3.12).

As there is negative weak correlation of oral health related quality of life score with domain of ‘Physical pain’, ‘Physical disability’, ‘Psychological discomfort’, ‘social disability’ and ‘Handicap’, we can say that, people with low oral health literacy recognise oral disease impacting their lives when they have pain in teeth or mouth (‘Physical pain’ domain), or when they have meal interruption or unable to eat satisfactory diet due to oral condition (Physical disability’ domain). People with low oral health literacy also recognise oral condition impacting their life when they were unable to do routine job or when they felt irritated due to their oral condition (‘social disability’ domain).

Domain of ‘Functional limit’ and ‘Psychological disability’ show a positive correlation with oral health literacy that means when oral health literacy increases then oral health related quality of life score also increases (people perceive their oral health related quality of life as poor). In other words, we can say people with high oral health literacy perceive their quality of life as worse when they have some psychological disability due to oral condition (felt difficulty in relaxing or felt embarrassed due to oral condition) or when they have functional disability (taste sense getting worsened or unable to speak due to oral condition).

CHAPTER- 4
DISCUSSION

Study was conducted among 35–59-year-old literate person of rural area of Kadipur tehsil. People in midlife (age 35-59) have maximum power to take health decision (Finke *et al*., 2006) (Lachman *et al*., 2015). Making appropriate health decision is important component of oral health literacy so, this age group was selected. Objective of this study was to find association between oral health literacy and oral health related quality of life.

Oral health literacy is ability to understand health and take appropriate decision that will help in reducing health inequity and also help in prevention disease and promotion of health. (Horowitz and Kleinman, 2012).

Median age of participant were 45 years with standard deviation of 14, that means most of participants aged between 37 to 53 years. Around 70 percent participants were men. Reason for low participation of women were, in some areas women were not allowed to take part in this study by in - laws and in other areas they themselves did not take part in study due to absence of men in the house.

Maximum participants, around 73 percent were having family income less than five thousand a month. So maximum participants in study belong to lower economic strata. Around 64 percent of participant were having education below graduation.

When people were enquired about their past history of dental problem in last one year, only 30 percent participants reported that they had some dental problem. This is similar to study done in rural areas of Andhra Pradesh (Bommireddy *et al*., 2016) where around 36 percent people expressed to have past history of dental problem. 36 percent women reported that they had some dental problem whereas only 27 percent of men reported to have some dental

problem in last one year. So, either women are frequent visitor to dental clinic or they had better recall of dental problem compare to men.

In present study 47 percent participants reported that they never visited a dentist and around 53 percent participant reported visiting dentist at least once in their lifetime which was more than the study done in rural areas of Guntur district of Andhra Pradesh (Bommireddy *et al*., 2016) where 31 percent people reported past visit to dentist. But study done in Bangalore (Kadaluru *et al*., 2012) found men to be more frequent visitor than women.

Among women, around 63 percent of women had visited dentist for their dental problem at least once in their lifetime whereas among men only 48 percent of men had made visited dentist for their dental problem. So, women were frequent visitor to dentist compare to men. This is similar to study (Appukuttan *et al*., 2022) done in Chennai where women were frequent visitor to dental clinic compare to men.

Around 46 percent Participant preferred going to private clinic compared to government hospital. Women preferred to go more often to private clinic as compared to men. Around 58 percent women visited private clinic whereas only 40 percent men preferred going to private clinic.

Maximum participant visited dentist when they either had decayed tooth or having pain or bleeding gums this is similar with finding of study done by (Appukuttan *et al*., 2022).

4.1. Oral health literacy

In this study 41 percent of participant were having adequate oral health literacy, this is higher than oral health literacy of study done in Ghaziabad (Das *et al*., 2023) where adequate oral health literacy was only 20 percent. Reason for high oral health literacy in present study could be social desirability bias. As study was done in community set up

people might have reported what ideally was expected from them. So, people might be responding to what make them look good in that set up.

4.2. Oral health related quality of life

Oral health related quality of life was measured by oral health impact profile -14(OHIP-14) (Slade, 1997) which was set of 14 question measuring various dimensions of oral health like functional limitation, physical disability, social disability, psychological disability, physical pain, psychological discomfort and handicap. These domain capture perceived impact of oral disease or problem on wellbeing of the person (Slade, 1997).

Refer table 3.7, participant who responded “occasionally”, “Fairly often” and “Very often” to oral health related quality of life questionnaire (OHIP-14), shows the negative impact of oral disease on their lives, whereas those who responded “hardly ever” and “never” shows the negligible or no impact of oral disease on their lives. Among those who reported impact of oral diseases on their quality of life, mainly reported, in the dimension of physical pain which indicate that participants mainly recognised negative impact of disease when they have pain or when they are not able to eat food. Around 19 percent participants also recognised that due to their oral problems, their meals are getting interrupted and this is causing ‘physical disability’ to them. Some participants also recognise that they got tensed or self-conscious due to their oral condition. So, people are mainly recognising oral problem when they have pain in oral cavity or when they not able to eat food. Study done by (AVASTHI *et al*., 2022) also found that people recognise quality of life getting affected when they have pain in teeth or jaw and when they become self-conscious or tensed due to oral condition (so mainly in domain of psychological discomfort and physical pain). Dental treatment is costly and dentist are not usually present in rural areas this could be the reason for people visiting dentist only when they have pain or when they are not able to eat food.

4.3. Education and Oral Health Literacy score

Oral health literacy score had shown not normal distribution, so median score of oral health literacy was compared across different category of education. It was found that median score of oral health literacy increases as education level of people increase (refer table 3.8) and significant p value gave sufficient evidence to say that observed difference in not occurring by chance and there was real difference of oral health literacy score among different education group. So, it can be said that education is associated with oral health literacy of a person. This is similar to study done in Chennai (Appukuttan *et al*., 2022) and Rajpura (Gambhir *et al*., 2014) where education found to be linked with oral health knowledge or oral health literacy of the person. People who have low literacy found to have low oral health literacy(Baskaradoss, 2018). So, people with have high literacy are able to read instruction given by dentist and are able to capture the jargon words thrown towards them by dental professionals.

4.4. Education and Oral health related quality of life

This study observed that median score of oral health related quality of life decrease with increase in level of education and as p value is greater than chosen level of significance of 0.05, so there is no statistically sufficient evidence to say that oral health related quality of life differs with education. But study done by Bado *et al*. found that people with higher education have poor Oral health related quality of life (Bado et al., 2020). Reason could be people with high level of education are able to recognise impact of oral disease on their quality of life better than people with less education.

4.5. Family monthly income and Oral health literacy

Family income didn't significantly contribute to oral health score, p value was more than chosen significance level of 0.05. As there was no statistically significant difference in median score of oral health literacy score across different family income group, so it can be said that oral health literacy didn't depend on economic status of the person. However, Das *et al.* found socio economic status linked with inadequate oral health literacy of the person (Das et al., 2020). Possible reason could be present study was done at community level whereas study done by Das *et al*. was at hospital setting, as dental treatment is costly at private clinic so people belonging to lower socio-economic status might be going more to hospital setting.

4.6. Past experience of dental problem and Oral health literacy

Past experience of dental problem found not be significantly impacting oral health literacy of participant refer table 3.10.

Median score of oral health related quality of life found to be largely differ between people who had past experience of dental problem compare to people who didn't have history of dental problem and it was found to be statistically significant (p value less than chosen significance level of 0.05). So, people who had past experience of oral disease able to recognise impact of oral disease on their quality of life.

4.7. Past experience of dental problem and oral health related quality of life

This study found that median score of oral health related quality of life differ significantly among people with past experience and people with no experience of dental problem in last one year. It could be due to fact that people with recent experience of dental problem had better recall that might have given higher score against each question.

4.8. Oral Health literacy and oral health related quality of life

Both oral health literacy and oral health related quality of life are not normally distributed, so, non-parametric test, Spearman's rank correlation was performed.

Oral health literacy and oral related quality of life shows negative correlation in

domain of, 'Physical disability', 'Physical pain', 'Handicap', 'social disability' 'Psychological discomfort' which means that people with low Oral health literacy recognise the oral disease impacting their lives when their meal got interrupted or when they are not able to eat satisfied meal (physical disability domain) or when they have pain in teeth or mouth ('Physical pain' domain). These findings are similar to study done by Divaris *et al.* where they also found weak negative correlation of OHL with oral health related quality of life (Divaris *et al*., 2011).

People with low oral health literacy also recognise oral condition impacting their life when oral condition made them feel irritated or when they unable to do routine job due to oral condition ('social disability' domain). These finding are similar to study (Divaris *et al.*, 2011) done in North Carolina where negative association was found between people with low oral health literacy and their Oral health related quality of life score.

4.9. Strengths

This study was done at community level and using random sampling method, so results are generalisable. Many tools for measuring oral health literacy just measure word recognition ability (Ghaffari *et al*., 2020) but this study have also included numeracy, listening and health decision making skill test, so study done with this tool give us a complete picture of oral health literacy at community level.

4.10. Limitation

Limitation of this study is that it was a cross sectional study which was exploring association of oral health literacy with oral health related quality of life so temporality cannot be establish between oral health literacy and oral health related quality of life.

Participation of women in the study was low compared to men. This was due to cultural reason, women either refuse to take part due to absence of men at home or family member did not allow them to be the part of study. So, findings of this study may be less generalisable to women.

CHAPTER -5
CONCLUSION

This study estimates oral health literacy and explore association of oral health literacy with oral health related quality of life at community level. This study found at community level only 41 percent of participants have adequate level of oral health literacy. It also found that people who had past history of oral disease were able to recognise impact of oral disease on their quality of life better than people who didn't had experience of oral diseases in past.

Oral health literacy found to have inverse relationship with all domain (except functional limitation and psychological disability) of oral health related quality of life. These associations are also statistically significant but strengths of association is weak.

5.1. Contribution to Public health knowledge

As this study which was done at community it helps us to know the relationship of oral health literacy and oral health related quality of life. This study shows that people's perception about oral health related quality of life varies with degrees in their oral health literacy. People with low level literacy consider their quality of life getting affect only when they have pain or not able to eat food or when oral disease have aggravated so much that they are not able to do their routine job. But people with high literacy consider their quality of life getting even when they are not able to relax or when they have difficulty in tasting food or pronouncing the words.

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Annexure I

Exploring Oral Health Literacy prevalence and its Impact on Quality of Life among adults (35-59) of Kadipur Tehsil, District Sultanpur, UP

Interview Schedule

Section A: Questionnaire for background detail and Oral Health care Utilization Pattern

S.NO	Question	Option	Code
1	What is your age on your last birthday		
2	Sex	Male	1
		Female	2
		Transgender	3
3	What is the colour of your ration card	White	1
		yellow	2
		Green	3
		Not available	4
4	What is your family income per month	<5000	1
		5000-10000	2
		>10000	3
5	What is the highest educational attainment you have reached?	Illiterate	1
		Literate but below primary	2
		Primary	3
		Middle	4
		Secondary	5
		Higher Secondary	6
		Graduate or higher	7
		Other	8
6	How often do you visit dental clinic/hospital?	Never	1
		Once in a year	2
		More than once in a year	3
		Don’t know	4
7.	In The last twelve months, have you ever experienced any pain or discomfort in your teeth or mouth?	Yes	1
		No	2
		Don’t Know	3
8	If you experience any pain or discomfort in your teeth or mouth, what kind of clinic or hospital do you seek for treatment?	Governmentdental hospital	1
		Private dental clinic	2

		Indigenous system of medicine (AYUSH)	3
		Others	4
9.	What was your reason for last dental visit	Pain Or Swelling in Mouth Or Jaw	1
		Tooth Decay	2
		Bleeding Gum, Mobile Teeth	3
		Discoloured Teeth	4
		Trauma	5
		Routine Dental Check Up	6
10.	what was your reason for not visiting dentist	I Don't Experience Any Dental Issue	1
		My Problem Was Not Serious	2
		Dental Treatment Is Costly	3
		I Don't Have Time to Visit Dentist	4
		Dental Clinic/ Hospital Far from My Place	5
		Fear Of Dental Treatment	6
11..	What is your reason for preferring that centre?	Cheaper	1
		Near to my place	2
		Others advised	3
		Due to good quality of treatment	4
12.	How was your last dental experience	Very Satisfying	1
		Satisfying	2
		Uncertain	3
		Dissatisfying	4
		Very Dissatisfying	5

Section B: Oral Health Literacy-Adult Questionnaire (OHL-AQ)

(Part- A, B, C and E: Self-administered; Part- D: Interviewer administered)

Part A- Reading comprehension (reading and knowledge skills)

In this part you will see a passage about oral health knowledge. Fill the blank line by choosing one word that you think is correct and circle the letter in front of the word.

1- Research shows that there may be a link between oral diseases and other health problems such as

_____.

A) Skin disease

B) Myocardial infarction

C) Mental illness

D) Muscular dystrophy

E) Don't know

2- One of the most common oral diseases is tooth decay. Brushing with toothpaste that contains_____ At least twice a_____ with flossing and avoid foods with lots of→

A) Flavors A) Month

B) Whitening B) Meal

C) Detergents C) Day

D) Fluoride D) Week

E) Don't know

→_____could prevent tooth decay.

A) Salt

B) Spices

C) Fat

D) Sugar

E) Don't know

3- Every person has 32 _____ teeth which get the _____ at six years old.

A) Incisor A) Most of them

B) Deciduous B) First one

C) Molar C) Last one

D) Permanent D) All of them

E) Don't know E) Don't know

Part -B - Numeracy (reading, writing and calculation skills)

In this part you will see a prescription for antibiotic consumption. Please write or select the

answers below each card.

Diagnose: Infection and dental abscess
Treatment: Amoxicillin (500 mg) capsules (21)
Take one capsule by mouth three times (every 8 hours) a day for 7 days

Figure 1. Oral Health Literacy Adults Questionnaire

Q4- If you take the first capsule at 14, when should you take the next one?

At_____

Don't know

Q5- If your symptoms are gone by the 4th day of taking the medication, should you stop taking the

medication?

A) Yes B) No C) Don't know

Part-C- Numeracy (reading, writing and calculation skills)

In this part you will see an instruction of mouth rinse. Please write or select the answers

below each card

Sodium fluoride mouth rinse 0.2 %

Swish and spit 5cc for 1minute onetime per week

Then do not eat and drink anything for 30 minutes

Q6- With regard to this prescription can you swallow it?

A) Yes B) No C) Don't know

Q7- If you use it at 12 am, when can you eat or drink?

At_____

a) Don't know

Part-D- Listening (listening, reading, writing, calculation and communication skills)

In this part you will hear some sentences about post extraction instruction. Please write or select the answers.

Bite down on a moist gauze pad for 30 minutes on the site of tooth extracted

Do not spit out for 12 hours

Eat cold and soft food like ice cream or cold soup for 12 hours after tooth extraction

(This card will be read by interviewer and the interviewee will not see this card)

Q8- If your tooth was extracted at 8 am, when should you put the gauze out of your mouth?

At_____

Don't know

Q9- If your tooth was extracted at 8 am, can you eat hot food at 2 P.M?

A) Yes B) No C) Don't know

Part-E- Appropriate decision-making (reading, comprehension and decision-making skills)

In this part you will see some questions about oral health problems and dental examination

form. Choose the best answer and circle the letter in front of the sentence.

Q10- What is the best decision if little bleeding occurs after brushing or flossing?

A) Do not brushing and flossing daily

B) Chewing gums instead of brushing or flossing

C) Continue brushing and flossing daily

D) Use toothpick instead of brushing and flossing

E) Don’t know

Q11- Which is the best decision if pain and swallowing occur in month?

A) Antibiotic consumption

B) Analgesic consumption

C) Consultation with family

D) Attend to the doctor or dentist

E) Don’t know

Q12- Which of the following is the best way to remove stain and calculus from a person’s teeth?

A) Eating hard foods like apple

B) Rinsing with a mouthwash

C) Use anti tartar and extra whitening toothpaste

D) Getting a dental cleaning

E) Don’t know

Q13- What is the meaning of “I exonerate my dentist from unintentional complications of treatment”

in your opinion?

A) My dentist is responsible for unintentional complications of treatment

B) I consent to my dentist proposed treatment

C) I give my permission to my dentist to do any treatment as necessary

D) My dentist is not responsible for unintentional complications of treatment

E) Don’t know

Q14- What is the meaning of “I have a history of allergy to some drugs” in your opinion?

A) I feel problem in speaking and convulsing after consumption of some drugs

B) I get severe chest pain after consumption of some drugs

C) I feel inability to breath and redness in my skin after consumption of some drugs

D) I feel anxiety and dizziness after consumption of some drugs

E) Don’t know

Section C: Self-administered

Oral health Impact Profile- 14

(Questionnaire for Oral health related quality of life)

Dimension	Question	Weight
Functional limitation	Have you had trouble *pronouncing any words* because of problems with your teeth, mouth or dentures?	0.51
	Have you felt that your *sense of taste* has worsened because of problems with your teeth, mouth or dentures?	0.49
Physical pain	Have you had *painful aching* in your mouth?	0.34
	Have you found it *uncomfortable to eat any foods* because of problems with your teeth, mouth or dentures?	0.66
Psychological discomfort	Have you been *self-conscious* because of your teeth, mouth or dentures?	0.45
	Have you *felt tense* because of problems with your teeth, mouth or dentures?	0.55
Physical disability	Has your *diet been unsatisfactory* because of problems with your teeth, mouth or dentures?	0.52
	Have you had to *interrupt meals* because of problems with your teeth, mouth or dentures?	0.48
Psychological disability	Have you found it *difficult to relax* because of problems with your teeth, mouth or dentures?	0.60
	Have you been a bit *embarrassed* because of problems with your teeth, mouth or dentures?	0.40
Social disability	Have you been a bit *irritable with other people* because of problems with your teeth, mouth or dentures?	0.62
	Have you had *difficulty doing your usual jobs* because of problems with your teeth, mouth or dentures?	0.38
Handicap	Have you felt that life in general was *less satisfying* because of problems with your teeth, mouth or dentures?	0.59
	Have you been *totally unable to function* because of problems with your teeth, mouth or dentures?	0.41

* Responses are made on a 5-point scale, coded 0=never, 1=hardly ever, 2=occasionally, 3=fairly often, 4=very often. Within each dimension, coded responses can be multiplied by weights to yield a subscale score.

Annexure II

<u>कादीपुर तहसील, जिला सुल्तानपुर, यूपी के वयस्कों (35-59) के बीच मौखिक स्वास्थ्य साक्षरता के प्रसार और जीवन की गुणवत्ता पर इसके प्रभाव की खोज</u>

अनुभाग क- सर्वेक्षण प्रश्नावली (साक्षात्कारकर्ता द्वारा प्रशासित प्रश्नावली)

पृष्ठभूमि विवरण और मौखिक स्वास्थ्य देखभाल उपयोग पैटर्न के लिए प्रश्नावली

क्र.सं.	**प्रश्न**	**विकल्प**	**कोड**
1	आपके पिछले जन्मदिन पर आपकी उम्र क्या थी?		
2	लिंग	पुरुष	1
		स्त्री	2
		ट्रांसजेंडर	3
3	आपके राशन कार्ड का रंग क्या है?	सफेद	1
		पीला	2
		हरा	3
		उपलब्ध नहीं है	4
4	आपकी पारिवारिक आय प्रति माह क्या है	<5000	1
		5000-10000	2
		>10000	3
5	आप किस सर्वोच्च शैक्षिक उपलब्धि तक पहुँचे हैं??	निरक्षर	1
		साक्षर लेकिन प्राथमिक स्तर से नीचे	2
		प्राथमिक	3
		मध्य	4
		माध्यमिक	5

		उच्च माध्यमिक	6
		स्नातक या उच्चतर	7
		अन्य	8
6	आप कितनी बार डेंटल क्लिनिक/अस्पताल जाते हैं?	कभी नहीं	1
		साल में एक बार	2
		साल में एक से ज्यादा बार	3
		पता नहीं	4
7.	पिछले बारह महीनों में, क्या आपने कभी अपने दांतों या मुंह में कोई दर्द या परेशानी महसूस की है?	हाँ	1
		नहीं	2
		पता नहीं	3
8	यदि आपको अपने दांतों या मुंह में कोई दर्द या असुविधा महसूस होती है, तो आप उपचार के लिए किस प्रकार के क्लिनिक या अस्पताल में जाते हैं?	सरकारी दंत चिकित्सालय	1
		निजी दंत चिकित्सालय	2
		औषधि की स्वदेशी प्रणाली (आयुष)	3
		अन्य	4
9.	आपके अंतिम दंत परीक्षण का कारण क्या था,	मुँह या जबड़े में दर्द या सूजन	1
		दांतों में सड़न	2
		मसूड़ों से खून आना, मोबाइल दांत	3
		बदरंग दांत	4
		सदमा	5

		नियमित दंत चिकित्सा जांच	6
10.	तो दंत चिकित्सक के पास न जाने का आपका कारण क्या था?	मुझे दांतों से संबंधित कोई समस्या नहीं है	1
		मेरी समस्या गंभीर नहीं थी	2
		दांतों का इलाज महंगा है	3
		मेरे पास दंत चिकित्सक के पास जाने का समय नहीं है	4
		डेंटल क्लिनिक/अस्पताल मेरे स्थान से बहुत दूर	5
		दांतों के इलाज का डर	6
11.	उस केंद्र को प्राथमिकता देने का आपका कारण क्या है?	सस्ता	1
		मेरे घर के पास	2
		दूसरों ने सलाह दी	3
		इलाज की अच्छी गुणवत्ता के कारण	4
12.	आपका पिछला दंत अनुभव कैसा था?	बहुत संतुष्टिदायक	1
		संतुष्टि देने वाला	2
		ढुलमुल	3
		असंतोषजनक	4
		बहुत असंतोषजनक	5

मुंह - स्वास्थ्य साक्षरता-वयस्क प्रश्नावली

(OHL-AQ) Questionnaire

पढ़ने की समझ (पढ़ना और ज्ञान कौशल)

1. शोध से पता चला है कि मुँख की बीमारियों और अन्य स्वास्थ्य समस्याओं जैसे की .... में सबंध हो सकता है ।
   (1) चर्म रोग (2) हृदय रोग (3) मानसिक बीमारी
   (4) मांसपेशियो की बीमारी (5) पता नहीं

2. मुँख संबधित बीमारियो में सबसे आम दातों की सड़न है । दातों की सड़न को ..... युक्त दंत मंजन से ब्रश करने से, फ्लोस करने से और अत्यधिक मीठे खाद्यय पदार्थो के परहेज से रोका जा सकता है ।
   (1) फ्लेवर (2) वाइटनिंग (3) डिटरजेन्ट
   (4) फ्लोराईड (5) पता नहीं

3. दांतो की सड़न को रोकने के अन्य तरीको में ..... में दो बार ब्रश और प्लोस करना है ।
   (1) महिने (2) भोजन (3) दिन
   (4) सप्ताह (5) पता नहीं

4. अत्यधिक ..... खाद्यय पदार्थो के सेवन के परहेज से भी दांतो की सड़न को रोका जा सकता है ।
   (1) नमक वाले (2) तीखे (3) चर्बी वाले
   (4) मीठे (5) पता नहीं

5. प्रत्येक व्यक्ति के 32 ..... दांत होते है ।
   (1) आगे के दांत (2) दुध के दांत (3) दाडे
   (4) पक्के दांत (5) पता नहीं

6. इन दांतो में ..... दांत 6 साल की उम्र में आते है । (1) अधिकांश (2) पहला दांत (3) आखिरी दांत (4) सभी दांत (5) पता नहीं

लक्षण – दांतो में संक्रमण
इलाज – एमोक्सीसीलीन (500 **mg**) **Amoxicillin** 500 **mg Tablet**
(21) प्रत्येक गोली दिन में तीन बार (हर 8 घन्टे में) सात दिनो तक लेवें।

7. यदि आप पहली गोली दोपहर 2 बजे लेते है तो अगली खुराक कब लेनी चाहिए । (1) ..... बजे (2) पता नहीं

8. यदि आपके लक्ष्ण दवा शुरू करने के 4 दिन में ही चले जाए तो क्या आपको दवा की खुराक बंद कर देनी चाहिए ।
(1) हॉ (2) नहीं (3) पता नहीं

संख्यात्मकता (पढ़ना लिखना और गणना कौशल)

इस भाग में आपको मुंह कुल्ला करने का निर्देश दिखाई देगा।

सोडियम फ्लोराईड (**NaF**) **0.2%**
5 **CC** दवा को 1 मिनट के लिए, सप्ताह में एक बार मुँह में घुमाए और थूंके इसके पश्चात 30 मिनट तक ना कुछ खाये ना कुछ पिये।

9. ऊपर दिये गये परामर्श के संबध में क्या आप कुल्ले करने की दवा को निगल सकते है ? (1) हॉ (2) नहीं (3) पता नहीं

10. यदि आप दोपहर 12 बजे कुल्ले करने की दवा का इस्तेमाल करते है तो आप कब खा–पी सकते है ?
(1) ..... (2) पता नहीं

सुनना (पढ़ना लिखना गणना और संचार कौशल)

इस भाग में आप पोस्ट निष्कर्षण निर्देश के बारे में कुछ वाक्य सुनेंगे। कृपया उत्तर लिखें या चुनें।

दांत निकाले जाने की जगह पर 30 मिनट के लिए नम रूई की पट्टी पर काट लें 12 घंटे तक बाहर न थूकें।

दांत निकालने के बाद 12 घंटे तक आइसक्रीम या ठंडा सूप जैसे ठंडा और नरम भोजन खाएं (यह कार्ड साक्षात्कारकर्ता द्वारा पढ़ा

जाएगा और साक्षात्कारदाता को यह नहीं कार्ड दिखाई नहीं देगा)

निम्नलिखित प्रश्नों के उत्तर के पहले प्रश्नकर्ता से जानकारी सुने

11. यदि आपका दांत सुबह 8 बजे निकाला गया हो तो आप कब रूई की पट्टी को मुँह से निकाल सकते है ?

(1) ..... (2) पता नहीं

12. यदि आपका दांत सुबह 8 बजे निकाला हो तो क्या आप दोपहर 2 बजे गरम भोजन कर सकते है ?

(1) हॉ (2) नहीं (3) पता नहीं

निर्णय लेने का (पढ़ने समझने और निर्णय लेने का) कौशल

13. यदि ब्रश और फ्लास करने के बाद, मसुडो से थोडा खून आये तो आपका सही चुनाव क्या होगा

(1) प्रतिदिन ब्रश और फ्लास न करें

(2) ब्रश और फ्लास के बजाए चबाने वाले खाद्यय पदार्थो का उपयोग करें

(3) नियमित ब्रश और फ्लास करें

(4) ब्रश और फ्लास के बजाए टूथपिक या काडी का इस्तेमाल करें ।

(5) पता नहीं

14. यदि आपके मुँह में दर्द एवं सुजन हो तो आपका सही चुनाव क्या होगा ?

(1) एंटीबायोटिक दवा का उपयोग

(2) दर्द निवारक दवा का उपयोग

(3) परिवार के सदस्यों से परामर्श

(4) दंत चिकित्सक से मिले

(5) पता नहीं

15. किसी व्यक्ति के दांतो पर जमी गंदगी और कड़क परत को हटाने का सबसे सही तरीका कौन सा है ?

(1) सेब जैसे कड़क खाद्यय पदार्थ का सेवन

(2) कुल्ले करने की दवा का इस्तेमाल

(3) कड़क परत को जमने से रोकने वाला और ज्यादा सफेदी प्रदान करने वाले दंत मंजन का प्रयोग

(4) दंत चिकित्सक द्वारा दांतो की सफाई करवाना

(5) पता नहीं

16. आपकी राय में ''मैं अपने दंत चिकित्सक को किसी भी प्रकार की अन्जान चिकित्सकीय जटिलता के लिए दोषमुक्त करता हूँ'' इसका क्या मतलब है ?

(1) मेरे दंत चिकित्सक इलाज के दौरान हुई अन्जान चिकित्सकीय जटिलता के लिए जिम्मेदार है ।

(2) मैं अपने दंत चिकित्सक द्वारा सुझाए गए इलाज को स्वीकृति देता हूँ ।

(3) मैं अपने दंत चिकित्सक को किसी भी प्रकार की आवश्यक चिकित्सा हेतु अनुमति देता हूँ ।

(4) मेरे दंत चिकित्सक इलाज के दौरान हुई अन्जान चिकित्सकीय जटिलता के लिए जिम्मेदार नहीं है।

(5) पता नहीं

17. ''मुझे कुछ दवाओं से एलर्जी की शिकायत है'' आपकी राय में इस वाक्य का क्या मतलब है ?

(1) कुछ दवाओ के उपयोग के बाद मुझे बोलने में तकलीफ और अकड़न महसूस होती है

(2) कुछ दवाओ के सेवन के बाद मुझे सीने में तेज दर्द उठता है

(3) कुछ दवाओ के उपयोग के बाद मुझे सांस लेने में तकलीफ एवं त्वचा पर लालपन हो जाता है

(4) कुछ दवाओ के उपयोग के बाद मुझे बैचेनी और चक्कर जैसा लगता है

(5) पता नहीं

अनुभाग ग- OHIP-14 (स्वप्रशासित प्रश्नावली)

क्या आपके अपने दांतो, मुँह या जबड़ों की परेशानी की वजह से निम्न में से किसी चीज़ का एहसास हुआ?

	पता नही	कभी नही	गिनी चुनी बार	कभी - कभी	काफ़ी बार	बहुत बार (रोज)
1. शब्दों को बोलने में तक़लीफ	☐	☐	☐	☐	☐	☐
2. स्वाद महसूस करने क़ी क्षमता मे परेशानी	☐	☐	☐	☐	☐	☐
3. दर्द भरी कसक	☐	☐	☐	☐	☐	☐
4. खाने में तकलीफ	☐	☐	☐	☐	☐	☐
5. आत्म संकोच में रहना	☐	☐	☐	☐	☐	☐
6. परेशान रहना	☐	☐	☐	☐	☐	☐
7. असंतोषजनक आहार	☐	☐	☐	☐	☐	☐
8. भोजन में रुकावट	☐	☐	☐	☐	☐	☐
9. आराम करने में कठिनाई	☐	☐	☐	☐	☐	☐
10. असमंजस में पड़ना	☐	☐	☐	☐	☐	☐
11. चिड़चिड़ापन	☐	☐	☐	☐	☐	☐
12. रोज़ के काम करने में कठिनाई	☐	☐	☐	☐	☐	☐
13. जीवन में खुशी कम होना	☐	☐	☐	☐	☐	☐
14. किसी भी प्रकार का काम करने में असक्षम	☐	☐	☐	☐	☐	☐

Annexure III

Achutha Menon Centre for Health Science Studies (AMCHSS)

Sree Chitra Tirunal Institute for Medical Sciences & Technology (SCTIMST) Trivandrum

Participant Information sheet

Study Title: *Exploring association between Oral Health Literacy and Oral Health related Quality of life in adults of rural areas of Kadipur Tahsil, UP*

I am Dr Abhijeet Narayan Mishra, a final year MPH Student at AMCHSS, SCTIMST. As part of my MPH course, I am conducting a study titled "Exploring association between Oral Health Literacy and Oral Health related Quality of life in adults of rural areas of Kadipur Tahsil, UP."

Health literacy is "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions. Health literacy is important for everyone because, at some point in our lives, we all need to be able to find, understand, and use health information and services. Taking care of our health is part of everyday life, not just when we visit a doctor, clinic, or hospital. Health literacy can help us prevent health problems, protect our health, and better manage health problems when they arise.

The study needs to interview participant like you for gathering information related to the topic. If you are willing to participate in my study, I would be asking you regarding your background details such as socio-demographic, when you visit dentist, reason for your visit, which type of health centre you prefer to visit and why. Also, there will be questions to assess your Oral health literacy and Oral health related quality of life. It can take around 20-25 minutes time for the interview or to fill up the questionnaire.

In this study, your participation is purely voluntary. You are free to take your own time to answer the questions and if you are not willing to answer any of the questions you can ask me to skip the question. You have the complete right to withdraw your participation from the study at any time during the interview.

Though there might not be any direct benefit for you from this study, the information you share will be useful to understand prevalence of Oral health literacy and its impact on Oral health related quality of life among middle aged adults. It may help to suggest policy recommendations regarding Oral health program and help to focus on specific areas of Oral health. I assure you that all information you will be sharing with me will be highly confidential and only a summary of the information will be used for research and publication purpose. For any clarification regarding the study, you can contact me and for any queries, on the authentication of this study, you can get the Member Secretary, Institutional Ethics Committee (IEC) of SCTIMST.

Principal Investigator

Abhijeet Narayan Mishra

MPH Student

AMCHSS, SCTIMST,

Medical college (PO), Thiruvananthapuram-11 Email id: abhijeet.50156@gmail.com

Mobile: +91 7888401381

IEC Member Secretary

Dr. Srinivas G Member Secretary

Institutional Ethics Committee, SCTIMST, TrivandrumContact Number: 04712524689 (office)

Email id: srinivasg@sctimst.ac.in

Annexure IV

Achutha Menon Centre for Health Science Studies (AMCHSS)

Sree Chitra Tirunal Institute for Medical Sciences & Technology (SCTIMST) Trivandrum

Exploring association between Oral Health Literacy and Oral Health related Quality of life in adults of rural areas of Kadipur Tahsil, UP

Consent form

Respondent ID:

I have read / been read the information on the information sheet. The purpose of the study and my engagement have been explained, and all of my queries have been appropriately answered. By signing this consent form, I acknowledge that I understand what is required of me and that I am willing to comply. I am aware that I have the option to withdraw from study at any moment. I've been told of whom to contact if the necessity arises.

Respondent's Name:

Respondent's Signature /Thumb Impression Place:

Annexure V

अच्युता मेनन सेंटर फॉर हेल्थ साइंस स्टडीज (AMCHSS)

श्री चित्रा तिरुनल इंस्टीट्यूट फॉर मेडिकल साइंसेज एंड टेक्नोलॉजी (एससीटीआईएमएसटी)

तिरुवनंतपुरम

प्रतिभागी सूचना पत्रक

अध्ययन का शीर्षक: यूपी के कादीपुर तहसील के ग्रामीण क्षेत्रों के वयस्कों में मुख-स्वास्थ्य साक्षरता और मुख-स्वास्थ्य संबंधी जीवन की गुणवत्ता के बीच संबंध की खोज

मैं डॉ. अभिजीत नारायण मिश्रा, एएमसीएचएसएस, एससीटीआईएमएसटी में एमपीएच अंतिम वर्ष का छात्र हूं। अपने एमपीएच पाठ्यक्रम के हिस्से के रूप में, मैं कादीपुर तहसील, जिला सुल्तानपुर, यूपी में " यूपी के कादीपुर तहसील के ग्रामीण क्षेत्रों के वयस्कों में मुख-स्वास्थ्य साक्षरता और मुख-स्वास्थ्य संबंधी जीवन की गुणवत्ता के बीच संबंध की खोज " शीर्षक से एक अध्ययन कर रहा हूं।

स्वास्थ्य साक्षरता बताता है कि किस हद तक व्यक्तियों में उचित स्वास्थ्य निर्णय लेने के लिए आवश्यक बुनियादी स्वास्थ्य जानकारी और सेवाओं को प्राप्त करने, संसाधित करने और समझने की क्षमता होती है। स्वास्थ्य साक्षरता हर किसी के लिए महत्वपूर्ण है क्योंकि, हमारे जीवन में किसी न किसी बिंदु पर, हम सभी को स्वास्थ्य जानकारी और सेवाओं को खोजने, समझने और उपयोग करने में सक्षम होने की आवश्यकता होती है। अपने स्वास्थ्य की देखभाल करना रोजमर्रा की जिंदगी का हिस्सा है, न कि केवल तब जब हम किसी डॉक्टर, क्लिनिक या अस्पताल में जाते हैं। स्वास्थ्य साक्षरता हमें स्वास्थ्य समस्याओं को रोकने, हमारे स्वास्थ्य की रक्षा करने और स्वास्थ्य समस्याओं के उत्पन्न होने पर बेहतर प्रबंधन में मदद कर सकती है।

विषय से संबंधित जानकारी एकत्र करने के लिए अध्ययन में आप जैसे प्रतिभागियों का साक्षात्कार लेना आवश्यक है। यदि आप मेरे अध्ययन में भाग लेने के इच्छुक हैं, तो मैं

आपसे कुछ सवाल पूछूंगा जो आपकी पृष्ठभूमि के विवरण जैसे कि सामाजिक-जनसांख्यिकीय, कब आप दंत चिकित्सक के पास जाते हैं, दंत चिकित्सक के पास जाने का कारण, आप किस प्रकार के स्वास्थ्य केंद्र में जाना पसंद करते हैं और क्यों, के बारे में होंगे । साथ ही, आपके मौखिक स्वास्थ्य साक्षरता और मौखिक स्वास्थ्य संबंधी जीवन की गुणवत्ता का आकलन करने के लिए भी प्रश्न होंगे। साक्षात्कार या प्रश्नावली भरने में लगभग 20-25 मिनट का समय लग सकता है।

इस अध्ययन में आपकी भागीदारी पूर्णतः स्वैच्छिक है। आप प्रश्नों का उत्तर देने के लिए अपना समय लेने के लिए स्वतंत्र हैं और यदि आप किसी भी प्रश्न का उत्तर देने के इच्छुक नहीं हैं तो आप मुझसे प्रश्न छोड़ने के लिए कह सकते हैं। आपको साक्षात्कार के दौरान किसी भी समय अध्ययन से अपनी भागीदारी वापस लेने का पूरा अधिकार है।

हालाँकि इस अध्ययन से आपके लिए कोई प्रत्यक्ष लाभ नहीं हो सकता है, लेकिन आपके द्वारा साझा की गई जानकारी मौखिक स्वास्थ्य साक्षरता की व्यापकता और मध्यम आयु वर्ग के वयस्कों के बीच मौखिक स्वास्थ्य संबंधी जीवन की गुणवत्ता पर इसके प्रभाव को समझने में उपयोगी होगी। यह मौखिक स्वास्थ्य कार्यक्रम के संबंध में नीतिगत सिफारिशें सुझाने और मौखिक स्वास्थ्य के विशिष्ट क्षेत्रों पर ध्यान केंद्रित करने में मदद कर सकता है। मैं आपको विश्वास दिलाता हूं कि आप मेरे साथ जो भी जानकारी साझा करेंगे वह अत्यधिक गोपनीय होगी और केवल जानकारी का सारांश अनुसंधान और प्रकाशन उद्देश्य के लिए उपयोग किया जाएगा। अध्ययन के संबंध में किसी भी स्पष्टीकरण के लिए, आप मुझसे संपर्क कर सकते हैं और इस अध्ययन के प्रमाणीकरण पर किसी भी प्रश्न के लिए, आप एससीटीआईएमएसटी के सदस्य सचिव, संस्थागत आचार समिति (आईईसी) से संपर्क कर सकते हैं।

प्रमुख अन्वेषक

अभिजीत नारायण मिश्र

एमपीएच छात्र

एएमसीएचएसएस, एससीटीआईएमएसटी,

मेडिकल कॉलेज (पीओ), तिरुवनंतपुरम-11 ईमेल आईडी: abhijeet.50156@gmail.com

मोबाइल: +91 7888401381

आईईसी सदस्य सचिव

डॉ. श्रीनिवास जी

सदस्य सचिव

संस्थागत आचार समिति, एससीटीआईएमएसटी, त्रिवेन्द्रम संपर्क नंबर: 04712524689 (कार्यालय)

ईमेल आईडी: srinivasg@sctimst.ac.in

Annexure VI

अच्युता मेनन सेंटर फॉर हेल्थ साइंस स्टडीज (AMCHSS)

श्री चित्रा तिरुनल इंस्टीट्यूट फॉर मेडिकल साइंसेज एंड टेक्नोलॉजी (एससीटीआईएमएसटी)
तिरुवनंतपुरम

यूपी के कादीपुर तहसील के ग्रामीण क्षेत्रों के वयस्कों में मुख-स्वास्थ्य साक्षरता और मुख-स्वास्थ्य संबंधी जीवन की गुणवत्ता के बीच संबंध की खोज

सहमति पत्र

प्रतिवादी आईडी: _____

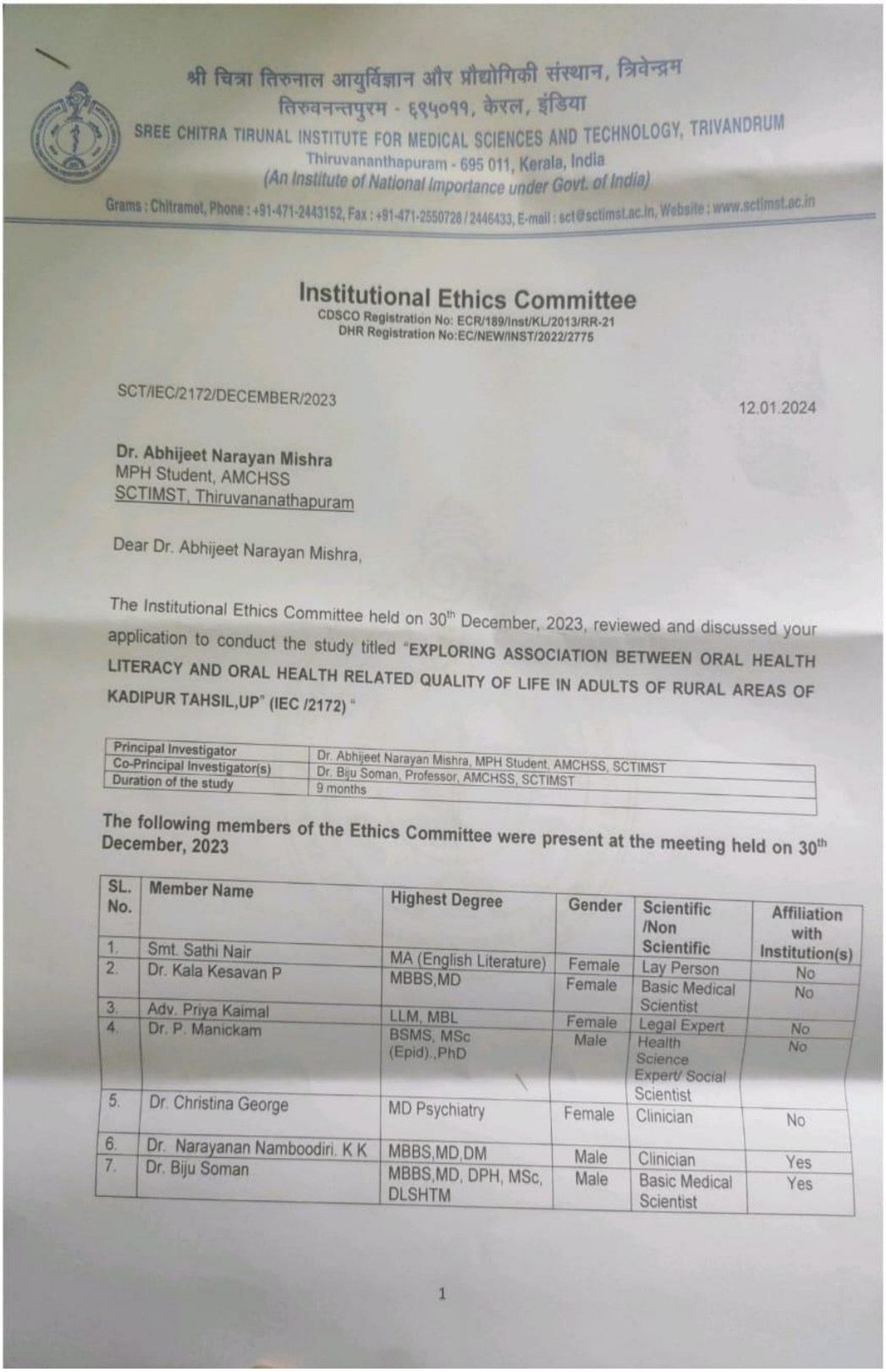
मैंने सूचना पत्रक पर दी गई जानकारी पढ़ ली है/पढ़ी गई है। अध्ययन का उद्देश्य और मेरी सहभागिता समझा दी गई है, और मेरे सभी प्रश्नों का उचित उत्तर दिया गया है। इस सहमति प्रपत्र पर हस्ताक्षर करके, मैं स्वीकार करता हूं/ करती हूँ कि मैं समझता/ समझती हूं कि मुझसे क्या अपेक्षित है और मैं इसका अनुपालन करने को तैयार हूं। मैं जानता/जानती हूं कि मेरे पास किसी भी समय इस अध्ययन से हटने का विकल्प है । मुझे बताया गया है कि जरूरत पड़ने पर किससे संपर्क करना है।

प्रतिवादी का नाम:

प्रतिवादी के हस्ताक्षर/अंगूठे का निशान

जगह

Annexure VII



श्री चित्रा तिरुनाल आयुर्विज्ञान और प्रौद्योगिकी संस्थान, त्रिवेन्द्रम
तिरुवनन्तपुरम - ६९५०११, केरल, इंडिया
SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND TECHNOLOGY, TRIVANDRUM
Thiruvananthapuram - 695 011, Kerala, India
(An Institute of National Importance under Govt. of India)
Grams : Chitramet, Phone : +91-471-2443152, Fax : +91-471-2550728 / 2446433, E-mail : sct@sctimst.ac.in, Website : www.sctimst.ac.in

Institutional Ethics Committee

CDSCO Registration No: ECR/189/Inst/KL/2013/RR-21
DHR Registration No:EC/NEW/INST/2022/2775

SCT/IEC/2172/DECEMBER/2023 12.01.2024

Dr. Abhijeet Narayan Mishra
MPH Student, AMCHSS
SCTIMST, Thiruvananathapuram

Dear Dr. Abhijeet Narayan Mishra,

The Institutional Ethics Committee held on 30th December, 2023, reviewed and discussed your application to conduct the study titled "**EXPLORING ASSOCIATION BETWEEN ORAL HEALTH LITERACY AND ORAL HEALTH RELATED QUALITY OF LIFE IN ADULTS OF RURAL AREAS OF KADIPUR TAHSIL,UP" (IEC /2172)** "

Principal Investigator	Dr. Abhijeet Narayan Mishra, MPH Student, AMCHSS, SCTIMST
Co-Principal Investigator(s)	Dr. Biju Soman, Professor, AMCHSS, SCTIMST
Duration of the study	9 months

The following members of the Ethics Committee were present at the meeting held on 30th December, 2023

SL. No.	Member Name	Highest Degree	Gender	Scientific /Non Scientific	Affiliation with Institution(s)
1.	Smt. Sathi Nair	MA (English Literature)	Female	Lay Person	No
2.	Dr. Kala Kesavan P	MBBS,MD	Female	Basic Medical Scientist	No
3.	Adv. Priya Kaimal	LLM, MBL	Female	Legal Expert	No
4.	Dr. P. Manickam	BSMS, MSc (Epid).,PhD	Male	Health Science Expert/ Social Scientist	No
5.	Dr. Christina George	MD Psychiatry	Female	Clinician	No
6.	Dr. Narayanan Namboodiri. K K	MBBS,MD,DM	Male	Clinician	Yes
7.	Dr. Biju Soman	MBBS,MD, DPH, MSc, DLSHTM	Male	Basic Medical Scientist	Yes

1

The following documents were reviewed:

Original submission

1. *Checklist Form*
2. *Covering letter addressed to the Chairman, IEC, SCTIMST dated 01.12.2023*
3. *Responses /amendments made based on the Reviewer's comments*
4. *IEC Application Form*
5. *Declaration Form*
6. *Research Proposal*
7. *CV of Principal Investigator and Guide*
8. *Full proposal*
9. *Information Sheet and Informed Consent Form in English and Hindi*
10. *Interview schedule in English and Hindi*
11. *SRC Recommendation Letter*

Revised submission

1. *Checklist Form*
2. *Covering letter addressed to the Chairman, IEC, SCTIMST dated 11.01.2024*
3. *Copy of IEC Recommendation letter dated 09.01.2024*
4. *Responses /amendments made based on the Reviewer's comments*
5. *IEC Application Form*
6. *Declaration Form*
7. *Research Proposal*
8. *CV of Principal Investigator and Guide*
9. *Full proposal*
10. *Information Sheet and Informed Consent Form in English and Hindi*
11. *Interview schedule in English and Hindi*

IEC Decision
The IEC approved the conduct of the study in the present form.

Remarks:
The Institutional Ethics Committee expects to be informed about the progress of the study, any SAE occurring in the course of the study, any changes in the protocol and patient information/informed consent and asks to be provided a copy of the final report.

There was no member of the study team / Guide who participated in voting / decision making process. The ethics committee is organized and operated according to the requirements of Good Clinical Practice and the requirements of the Indian Council of Medical Research (ICMR).

Sincerely,

Dr. G. Srinivas
Member Secretary, IEC

MEMBER SECRETARY
INSTITUTIONAL ETHICS COMMITTEE (IEC)
SCTIMST, THIRUVANANTHAPURAM

SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES & TECHNOLOGY
INSTITUTIONAL ETHICS COMMITTEE (IEC)
SCTIMST
THIRUVANANTHAPURAM

Annexure VIII

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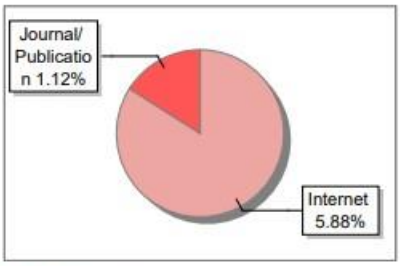
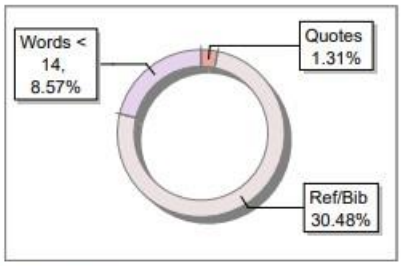
Submission Information

Author Name	ABHIJEET NARAYAN MISHRA (DR)
Title	MPH Scholar 2022-24
Paper/Submission ID	1711966
Submitted by	bijusoman@sctimst.ac.in
Submission Date	2024-04-29 09:28:37
Total Pages	86
Document type	Dissertation

Result Information

Similarity **7 %**





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Quotes	Excluded
References/Bibliography	Excluded
Sources: Less than 14 Words %	Excluded
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Language	English
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Journals & publishers	Yes
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Institution Repository	Yes

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228	1library.co	<1	Internet Data
232	omicsonline.org	1	Internet Data
233	omicsonline.org	1	Internet Data
235	omicsonline.org	1	Internet Data
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240	omicsonline.org	<1	Internet Data
243	omicsonline.org	<1	Internet Data
245	moam.info	<1	Internet Data
246	moam.info	<1	Internet Data
248	www.its-jds.in	<1	Publication