

## A Cross-Sectional Survey on Psychosocial Challenges in Hard of Hearing Students During COVID-19 and Proposed Methods on E- Learning

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### Abstract:

**Background:** The Covid-19 pandemic will be ruminated in the history as the whole world is facing a global crisis. Though it is combated efficiently by appropriate treatment and preventive measures, it has left behind psychosocial challenge. The hard of hearing community in this pandemic situation are having a severe psychosocial impact especially among school and college students. The aim of the present survey is to assess the psychosocial status of hard of hearing students not attending school due to lockdown during this Covid 19 pandemic through a questionnaire.

**Material and Methods:** A cross-sectional descriptive questionnaire survey was done to evaluate COVID-19-related awareness and the psychosocial challenges among hard of hearing individuals in December 2020, in Tamil Nadu. The questionnaire included a set of 17 questions which were framed to assess the knowledge of Covid-19 and to determine the psychosocial status through Likert scale. All data were statistically analysed using SPSS 20.0. The significance level of tests was fixed at  $p < 0.05$ .

**Results:** A total of 113 hard of hearing individuals in the age group between 15-25 years participated in the study. 42% of the study population either strongly agree or agree that maintaining social distancing affects communication. 77 % have felt that wearing mask is very important in preventing COVID 19. 91% and 89% of the study population have either agreed or strongly agreed that wearing mask affects communication with others and could not understand what other people converse due to hinderance of lip reading by masks. 95% felt the need for specially designed customised transparent face masks are necessary for easy communication.

**Conclusion:** This study assessed COVID-19-related awareness and the psychosocial status among the hard of hearing. The present study would like to state and emphasise the need and importance of transparent face masks. Connectedness with hard of hearing population effortlessly, is needed during this pandemic situation to make the society more comfortable for them.

**Keywords:** Hard of hearing, Psychosocial, Covid-19, transparent face masks.

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## Introduction

The global crisis in the form of corona virus disease 2019 (COVID-19) pandemic will have its impact on the daily routine of human life which will be reminisced in the forth-coming years [1] The coronavirus disease 2019 (COVID-19) is greatly affecting life around the globe. Isolation, restrictions and economic shutdown and repeated fluctuations will pose a wide spread transformation to human psychological behaviour in the affected countries.[2] Influences of mental health and well-being are considered to be psychosocial. [3]

During this pandemic, addressing the psychosocial understanding of the mental health is the need of the hour. Social skills are considered the predominant life skill with special mention to the communication skills that play an important element in our lives. Effective use of these skills helps to combat the social issues arising in our daily routine. The physically challenged were one among the worst affected during the pandemic because of ignorance, lack of knowledge and social interaction with peer. [4] The community of deaf and hard of hearing wide-ranging. The most commonly accepted term of this community over the years have come to be “deaf,” “Deaf,” and “hard of hearing”. True communication occurs when one’s message is understood by others, and they can respond in kind. [5]

Dearth of hearing is a great challenge and carries its own problems with distinct reference to the communication. There are various challenges faced by the population which includes the lack of social interaction, language and communication problems, educational and behavioural problems even otherwise. Anxiety, lack of peer contact and reduced opportunities for stress regulation are main concerns to be addressed among the hard of hearing

population. All these challenges remain exaggerated during this pandemic. Owing to the limited literature available on the psychosocial challenge faced by this community, this study was proposed to have a better understanding and knowledge on the psychosocial status of the hard of hearing students during this pandemic through a questionnaire study

## Materials and Methods

### Study design

A cross-sectional survey was performed among hard of hearing students in Tamil Nadu using a pre-validated questionnaire. The study was carried out in December 2020.

### Sample

This survey was done among hard of hearing students in the age group 15-25 in Tamil Nadu using convenience sampling.

### Inclusion criteria

Eligibility criteria for inclusion were hard of hearing students studying in schools or colleges and ability to understand the English/ regional language Tamil.

### Exclusion criteria

Exclusion criteria for study were the hard of hearing students along with other disabilities and inability to understand the questionnaire.

### Ethical clearance

The study protocol was approved by the Institutional review board (No.4/IERB/2021), Tamil Nadu Government dental college and hospital. The study was conducted under the informed consent of parents and the assent of them to participate in this study with the confidentiality maintained and respected.

### Validation process

The face validity and content validity of the questionnaire was assessed by teachers of special school and special instructor for hard of hearing students. A pilot study was conducted among to identify further barriers in understanding the questionnaire before disseminating the questionnaire. Special Communication person and parents were sorted in obtaining the required information in cases of difficulty in understanding the questionnaire.

### Questionnaire design

The questionnaire included a set of 17 questions which were framed to assess the knowledge of Covid-19 and to determine the psychosocial status through Likert scale (5 point, with options strongly agree, agree, neutral, disagree, strongly disagree). Apart from the demographic information, (which included age, gender, area of residing) few other information was ascertained which included status of physically challenged of parents, siblings, hearing aids usage and if used the duration of use. The questionnaire and consent forms were given in both English and the regional language Tamil.

### Statistical analysis

The data collected was analysed using Statistical Package for the Social Sciences version 21.0. Descriptive statistics for the collected data was recorded. The associations between different variables were tested using the Chi-square test or Fisher's exact test. A p-value  $\leq 0.05$  was statistically considered significant.

## Results & Discussion

### Demographic information

A total of 113 hard of hearing individuals participated in the study but 100% response rate was for 105. The study population comprised of students between 15-25 years of age including the high school, higher secondary and college students. The individuals between 15-18 years of age represented 73% and 19-25 years 27%. The males represented 55% and females 46%. The demographic details are shown in table-1. General awareness regarding Covid-19 were asked. 37.1% of males and 33.3 % of females were aware of Covid-19. 21.9% of males and 17.1 % females knew about spread of Covid 19 and 21.9% of males and 19% of females knew about the preventive ways.

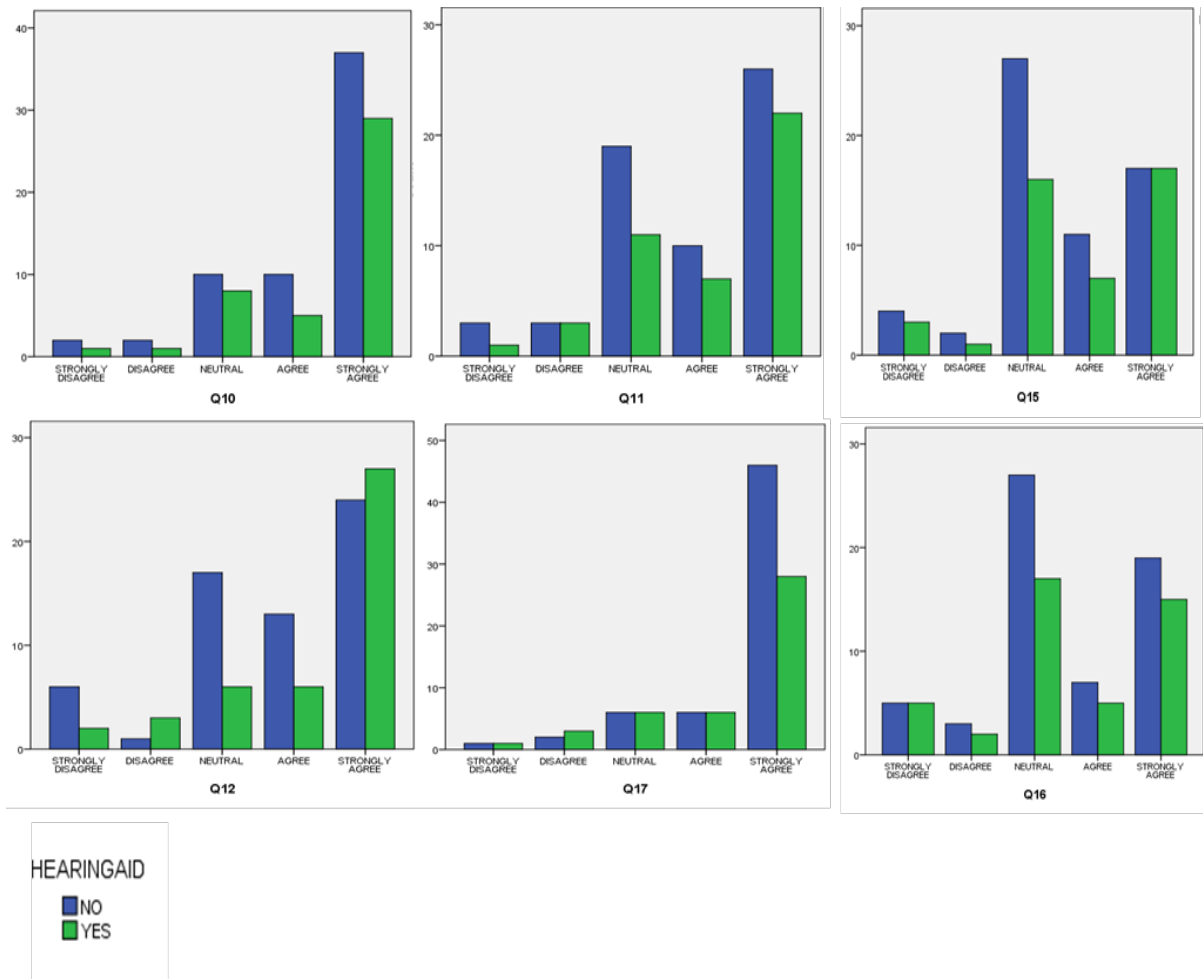
**Table 1: Demographic Details**

S No			Male	Female	p-value
1	Age	15-18 yrs	36.2%	37.1%	0.03
		>18-25 yrs	19%	7.6%	
2	Residential area	Urban	3.8%	1.9%	0.43
		Semiurban	7.6%	6.7%	
		Rural	42.9%	36.2%	
3	Parents deaf	No	53.3%	43.8%	0.57
		Yes	1.9%	1%	
4	Parents dumb	No	55.2%	43.8%	0.44
		Yes	0%	1%	
5	Sibling deaf	No	43.8%	41.9%	0.03
		Yes	11.4%	2.9%	
6	Sibling dumb	No	53.3%	41%	0.24
		Yes	1.9%	3.8%	
7	Hearing aid usage	Yes	21%	21%	0.23
8	If yes, duration	<1 yr	10.5%	11.4%	
		>1-5 yrs	8.6%	8.6%	
		>5 yrs	5.7%	1.9%	

9	Knowledge of sign language only	Yes	54.3%	42.9%	0.42
		No	45.7%	57.1%	
10	Knowledge of lip reading only	Yes	1%	1.9%	0.46
		No	99%	98.1%	

**Table 2: Consensus of the Study Population To The Questionnaire**

S. NO	Hard of hearing students mostly disagree/ strongly disagree with...	Hard of hearing students mostly agree/ strongly agree with...	Hard of hearing students are neutral with...
1	Lock down period has caused mental breakdown for me n= 43 (41%)	I feel maintaining social distancing affects communication (42%)	I feel insecure on seeing people with masks (46%)
2	I am unable to communicate with my family members (47%) n=49	I feel closure of special schools affects learning and Communication (66%)	I feel better on seeing people with only face shields instead of face masks (42%)
3	I feel my family members should learn sign language (50%) n= 53	I feel COVID 19 has affected rapport between me and my teacher (78%)	
4	I feel staying indoors at home during COVID 19 is fearful and anxious to me (52%) n= 55	I feel absence of peer group influences my self-confidence (78%)	
5	Online learning has a negative impact on my learning skills n= 48 (46%)	I feel wearing mask is very important in preventing COVID 19 (77 %)	
6		I feel wearing mask affects communication with others (91%)	
7		I cannot understand what other people converse due to hinderance of lip reading by masks (89%)	
		I feel removal of mask in an emergency during speech and communication in public places is not safe (49%)	
8		I can communicate to people even in the presence of face mask (62 %)	
9		I feel specially designed customised transparent face masks are necessary for easy communication (95%)	



**Graph 1: Shows the Responses Of The Study Population With Regard To Questions On Face Masks, With And Without Usage Of Hearing Aid**

Q10	I feel wearing mask is very important in preventing COVID 19
Q11	I feel wearing mask affects communication with others
Q12	I cannot understand what other people converse due to hinderance of lip reading by masks
Q15	I feel removal of mask in an emergency during speech and communication in public places is not safe
Q16	I feel better on seeing people with only face shields instead of face masks
Q17	I feel specially designed customised transparent face masks are necessary for easy communication

Coronavirus disease is a global pandemic infectious disease, which has a direct impact on daily chores. [2] It is significantly important to emphasize that during this pandemic situation, the safety of the public is the utmost and primary concern. [6]

Over 5% of the world’s population require rehabilitation to address their ‘disabling’

hearing loss. 'Hard of hearing' refers to people with hearing loss extending from mild to severe. People who are hard of hearing generally communicate through spoken language and are benefitted from hearing aids, cochlear implants, and other assistive devices as well as captioning. 'Deaf' people mostly have profound hearing loss, which implies very little or no hearing.

They often use sign language for communication. [7] Hard of hearing group are prone for stress and anxiety especially during such times than otherwise.[8] The knowledge regarding the spread of the virus and the preventive measures to be taken are often misleading due to the rapid change in the nature of the disease course, thereby leading to misperception among public. The hard of hearing individuals depend on their communication skills and social interactions in the society on a regular basis, which got hindered during this pandemic leading to a restricted daily life. [9] They face many annoyances and frustrations that limit their ability to do everyday tasks during this Covid 19-pandemic. [10] The main initiative behind the proposed study is to determine the psychosocial challenges among hard of hearing students during COVID 19 pandemic in Tamil Nadu.

In the present study 70% were aware of Covid-19 as an infectious viral disease, 39% and 41 % were aware of the mode of spread and the methods of prevention. This iterates that people with disabilities are facing difficulties in their inability to access information, especially which is related to COVID-19. [11] This brings them to limelight so as to gain better knowledge of mitigation prevention importance including personal protective measures and social distancing at front line. A pamphlet based on reputable sources such as UNICEF, the World Health Organization and National deaf Center can be distributed about the protocols of their safety during any pandemic like hand washing, social distancing, avoiding handshakes, using of handkerchief during cough and sneeze, etc which can be easily understood and accessed by the hard of hearing. [12,13,14] For hard of hearing people be in whatever place like hospitals, at work or in their homes the pandemic has exacerbated gaps in communication access, from a lack of reliable technology to an under-usage of certain tools when people need them

most.[15]

42% of the study population either strongly agree or agree that maintaining social distancing affects communication. 77 % have felt that wearing mask is very important in preventing COVID-19. 91% and 89% of the study population have either agreed or strongly agreed that wearing mask affects communication with others and could not understand what other people converse due to hinderance of lip reading by masks respectively. This echoes the fact that maintaining the usual level of social distance can has impact on communication skills.[16] The face coverings and need for social distancing which are intended to curtail the spread of Covid-19 pose unique challenges and are a definite barrier to the deaf or hard of hearing group. [17,18]

The education to the Hard of hearing is a special one which is composed of a range of teaching practices specifically tailored for the individuals need. Closure of schools and limited access to friendship groups can cause acute anxiety and stress in young people. [19,20] Schools for the deaf are unique and provide a community of sincere connection for many deaf or hard of hearing children. [21] This has been confirmed in our study where 66% either agreed or strongly agreed that closure of special schools affected learning and communication, 78% either agreed or strongly agreed that COVID 19 affected rapport with the special school teacher and 78% felt the absence of peer group which affected one's self confidence. Schools play a pivotal role in providing a wealth of support for children and young people, including food, comfort and a refuge from the home and the wider society.

41%, 47% 50%, 52%, 46% have strongly disagreed or disagreed that lock down period has caused mental breakdown, unable to communicate with family members, felt that family members should learn sign language, felt that staying indoors at home during COVID 19 was

fearful, anxious and felt that online learning had a negative impact learning skill respectively.

It is observed that spending long stuck indoor hasn't been hard to cope up by our study population. This explains the positive attitudes and the support of the parents and siblings of the study population. [11] This time must have been revisited by hobbies, activities that bring pleasure to the individuals. They have also expressed the fact of a common experience of together being in a disaster. Parents/carers play a crucial part in supporting their children in difficult times such as a pandemic but the school and community plays an important additional backup support in terms of emotion, education and social interaction. [22] But the whole world is in a state of collective trauma, the situation can be viewed and handled as an opportunity for people to go through it together.

77 % have felt that wearing mask is very important in preventing COVID 19. This explains us that the Hard of hearing population have been aware of the global threat and have understood the importance of wearing face mask. But the people with speech and hearing disabilities who lip read and use sign language are struggling to communicate with each other and the outside world. [23] In our study 91% and 89% of the study population have either agreed or strongly agreed that wearing mask affects communication with others and could not understand what other people converse due to hinderance of lip reading by masks. It reiterates their helplessness to communicate. 60-70% of communication is based on non-verbal cues from lip patterns and facial expressions, which are essential for anyone with communication difficulties.[24]

62 % have either agreed or strongly agreed that they can communicate to people even in the presence of face mask. The basis for this is that many of the affected persons have developed coping strategies. They

compensate for the impaired capability of reading facial identification cues by way other sources of information such as the characteristic gait or gesture. [25] But even with successful restitution, there is definitely a lacuna in procuring the information.

49% either agreed or strongly agreed in the of fact removal of mask in an emergency during speech and communication in public places is not safe. This explains that our study population have understood the importance of usage of face masks.[26]

46% and 42% were neutral in the fact of feeling insecure on seeing people with masks and the feeling of betterment on seeing people with only face shields instead of face masks. Face shields may be considered as an alternative to masks as respiratory droplet protection or as source control, based on availability, improved feasibility and better tolerability. [27]

95% felt the need for specially designed customised transparent face masks are necessary for easy communication. It is caressed the struggle met by the people who hear not and speak not and it is imperative to say face mask have posed a challenging communication barrier

Trecca et al suggest that hearing impaired had difficulty in communication due to the wearing of masks by health care workers that led to poor speech and impossibility of lip reading.[28]

Naylor G et al suggested that using clear or transparent face masks may alleviate some of the difficulties and anxieties of this population experience. [29] Nearly beginnings are being made to accommodate the special needs of the community. [30]

It is imperious to say that, transparent masks are yet to make their presence felt in any significant way. Though an easier way to communicate would be to just remove the mask and maintain physical distance it carries its own risk; specially designed masks are of course a sure benefit. A focus

on ensuring access to transparent masks, and enabling safe, effective communication for the hard of hearing population will be a legacy for years to come.

Garg et al have also pointed out the similar challenges faced by the hard of hearing community students which include lack of information, face mask making communication difficult, social distancing affecting their physical, mental health stigma and barriers related to the health-care system.[31]

The strengths of the study are as follows (1) To the best of our knowledge; this is the first cross-sectional survey to assess the psychosocial challenges among hard of hearing students during COVID 19 pandemic in India. (2) This survey has covered wide areas of the state including rural, semi urban and urban settings and different zones of isolation. However, this study has certain limitations. This study was done by convenience sampling and is not a population-based survey would recommend for a study on a large scale. Secondly this survey could include only those hard of hearing students in correspondence with the special schools and colleges.

The present study would like to state and emphasise the need and importance of transparent face masks for policy-makers. This recommendation can be made possible through expressive consultations with people with disabilities, implementation of the policy level program and, appropriate budgeting and monitoring of progress. The possibility of chances to affirm connectedness with Hard of hearing is needed to make the society more comfortable during this pandemic situation.

### Conclusion

The COVID-19 pandemic has enforced the worldwide population to adopt new ways of living with psychosocial stability reinforced. Information on Hard of hearing psychosocial knowledge may help common public and health professionals assess their

difficulties and bring out helpful coping up strategies in material and kind in this pandemic era.

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