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## Dynamics of Thoron Concentration in Dwellings of the Industrial Sites in Kannur District, Kerala

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**Abstract:** *The current study deals with the evaluation of the indoor concentration of <sup>220</sup>Rn (thoron) in different dwellings with various construction materials used for the roof and floor in the major industrial sites of Kannur district, Kerala. A pinhole-based dosimeter coupled with LR-115 Solid State Nuclear Track Detector (SSNTD) and Direct Thoron Progeny Sensor (DTPS) were respectively used for the measurement of indoor concentration and equilibrium equivalent concentration of thoron. The thoron concentrations were found to vary from 124.64 Bqm<sup>-3</sup> - 453.65 Bqm<sup>-3</sup>. The annual effective doses and excess lifetime cancer risks were observed in the range of 3.144 mSvy<sup>-1</sup> - 11.4 mSvy<sup>-1</sup> and 13x10<sup>-3</sup> to 45x10<sup>-3</sup> respectively, and both exceeded the world average values recommended by UNSCEAR 2000. The study shows that, the houses with marble floor and concrete roof have comparatively higher values of thoron concentration, which indicates the significant contribution of construction materials to the enhanced radiation levels inside the dwellings.*

**Key Words:** *Indoor Thoron Concentration, Annual Effective Dose, Excess Lifetime Cancer Risk, Pinhole-Based Dosimeter, Direct Thoron Progeny Sensor (DTPS), Equilibrium Equivalent Concentration.*

### 1. Introduction

The radionuclides from the decay series of <sup>232</sup>Th and <sup>238</sup>U are the major contributors to the terrestrial gamma radiation in the environment. Among those radionuclides, <sup>220</sup>Rn (thoron) from the decay chain of <sup>232</sup>Th is known to be hazardous due to various characteristics of the radionuclide. The radioactive gas emanating from <sup>220</sup>Rn can cause severe health issues including lung cancer, leukemia, etc. as per various reports. In view of this, here is an attempt to probe the <sup>220</sup>Rn activity concentration in dwellings near industrial

sites in Kannur district, Kerala. The dwellings were categorized depending on the various materials used for construction.

## **2. Methodology**

A pinhole based dosimeter mounted with an LR-115 type Solid State Nuclear Track Detector (SSNTD) and Direct Thoron Progeny Sensors (DTPS) respectively was used to measure the indoor thoron concentration (in Bqm<sup>-3</sup>) (Kirandeepkaur, et al., 2017) and equilibrium equivalent thoron concentration (in Bqm<sup>-3</sup>) (Mishra, R. and Mayya, Y.S., 2008; Prabhjot Singh, et al., 2015). Both the dosimeters were placed in different types of dwellings categorized as; Mud House (MH), Tile floor and Concrete roof (TC), Odu and wood roof and Red oxide floor (OR), Granite floor and Concrete roof (GC), and Marble floor and Concrete roof (MC). After the 3 months (90 days) of exposure time, the exposed SSNTD films were etched with 2.5N NaOH solution at a temperature of 60°C in a water bath for 90 minutes. The track density (in Trcm<sup>-2</sup>d<sup>-1</sup>) of alpha particles was then counted using a spark counter. The indoor thoron concentration and equilibrium equivalent concentration (EEC) were measured, and radiological parameters such as the annual effective dose (in mSv), excess lifetime cancer risk (ELCR) were estimated.

The indoor thoron concentration, C<sub>T</sub> in Bqm<sup>-3</sup> in the dwellings was estimated using the equation;

$$C_T (\text{Bqm}^{-3}) = \frac{(T_2 - B) - (T_1 - B)}{d \times K_T} \quad (1)$$

Where, T<sub>1</sub> and T<sub>2</sub> represent the track densities of radon and radon+thoron respectively in Trcm<sup>-2</sup> observed in the spark counter, B is the track density recorded in the unexposed sensors, K<sub>T</sub> is the calibration factor of thoron in radon+thoron chamber, K<sub>T</sub> = 0.010 Trcm<sup>-2</sup>d<sup>-1</sup> per Bqm<sup>-3</sup> and d is the exposure time of the SSNTD films, d = 90 days (Sudhir Mittal, et al., 2017).

The annual effective dose due to exposure to indoor radon and its progeny in mSvy<sup>-1</sup> is given by the equation;

$$\text{AED}_{\text{indoor}} (\text{mSvy}^{-1}) = C_T (\text{Bqm}^{-3}) \times 0.09 \times 0.8 \times 8760 \text{ hy}^{-1} \times 40 \text{ nSvh}^{-1} (\text{Bqm}^{-3})^{-1} \times 10^{-6} \quad (2)$$

Where,  $C_T$  is the indoor thoron concentration in,  $Bqm^{-3}$  0.09 is the indoor equilibrium factor between thoron and its progenies,  $40 nSvh^{-1}(Bqm^{-3})^{-1}$  is the dose conversion factor for thoron exposure, and 0.8 is the occupancy factor for indoor radiation (Kirandeepkaur, et al., 2017).

The excess lifetime cancer risk (ELCR) was calculated using the equation;

$$ELCR = AED_{\text{indoor}} (mSvy^{-1}) \times DL (y) \times RF (Sv^{-1}) \quad (3)$$

Where, DL is the duration of life (70 years) and RF is the risk factor ( $0.05 Sv^{-1}$ ) recommended by the ICRP.

The equilibrium equivalent concentration of thoron ( $EEC_{Rn-220}$ ) in  $Bqm^{-3}$  measured using DTSPS can be calculated using the equation;

$$EEC_{Rn-220} = \frac{T_{DTSPS} - B}{d \times S_{Rn}} \quad (4)$$

Where,  $T_{DTSPS}$  in  $Trcm^{-2}$  in is the track density of alpha particles in the thoron exposed sensors, B is the track density recorded in the unexposed sensors, d is the no. of days for which the sensors were exposed to radiation and  $S_{Rn}$  is the sensitivity factor of thoron, which is equal to

$$0.94 Trcm^{-2}d^{-1}(Bqm^{-3})^{-1}(\text{Sumit Sharma, et al., 2008}).$$

### 3. Result and Discussion

The indoor thoron activity concentration in dwellings varies from  $125 Bqm^{-3}$  -  $454 Bqm^{-3}$ . The values estimated for different houses clearly indicate that thoron activity concentration varies significantly with the type of house. The contributing factors may be ventilation conditions, types of construction, materials used for construction, and site specific characteristics. The maximum concentration of  $454 Bqm^{-3}$  (track density of  $409 Trcm^{-2}d^{-1}$ ) observed in dwellings with marble floor and concrete roof. The poor ventilation and cracks in floor due to age might be contributed to the higher level of activity concentration, in addition to the considerable role of construction materials. The marble floor house followed by granite floor house with activity concentration of  $288 Bqm^{-3}$ . Granite is a natural source of radiation,

like most natural stones. The minimum concentration of 125 Bqm<sup>-3</sup>(track density of 113 Trcm<sup>2</sup>d<sup>-1</sup>) observed in mud house with good ventilation. The annual effective dose in the dwellings ranges from 3mSv to 11mSv with the observed maximum for the marble floor and concrete roof house. Based upon calculated values of annual effective dose, excess lifetime cancer risk (ELCR) was calculated and found to vary from 13x10<sup>-3</sup> to 45x10<sup>-3</sup>. The thoron progeny concentration (in Bqm<sup>-3</sup>), annual effective dose (in mSvy<sup>-1</sup>) and excess lifetime cancer risk for different houses under study are given in Table 1.

**Table 1: Indoor Thoron Concentration in Different Types of Houses**

Type of house	Track density T <sub>1</sub> (Trcm <sup>-2</sup> )	Track density T <sub>2</sub> (Trcm <sup>-2</sup> )	Thoron concentration (Bqm <sup>-3</sup> )	Average thoron concentration (Bqm <sup>-3</sup> )	Annual effective dose (mSvy <sup>-1</sup> )	Excess lifetime cancer risk (x 10 <sup>-3</sup> )
MH1	242.5	30.5	33.8			
MH2	164.25	195.75	215.40	124.64	3.144	12.544
TC1	275.75	189	210	215.97	5.44	21.705
TC2	300.5	149.75	221.94			
OR1	286.75	321.25	356.9	273.033	6.88	27.483
OR2	157.5	170.25	189.167			
GC1	338.25	261.5	290.5	287.89	7.263	28.978
GC2	309.75	256.75	285.28			
MC1	228	689.5	765.4	453.65	11.4	45.64
MC2	434	127.75	141.9			

The track density associated with DTSPS varies from 48 Trcm<sup>2</sup>d<sup>-1</sup> to 268 Trcm<sup>2</sup>d<sup>-1</sup>. The equilibrium equivalent thoron concentration (EETC<sub>Rn-220</sub>) varies from 0.033 Bqm<sup>-3</sup> to 2.63 Bqm<sup>-3</sup> with observed minimum value for granite floor with concrete roof house and maximum value for mud house. The equilibrium equivalent concentrations of thoron in different types of houses are given in Table 2.

**Table 2: Equilibrium Equivalent Concentration of Thoron in Different Types of Houses**

Type of house	Track density $T_{DTPS}$ ( $\text{Trcm}^{-2}$ )	Average track density ( $\text{Trcm}^{-2}$ )	Equilibrium equivalent concentration ( $\text{Bqm}^{-3}$ )
MH1	310.25	267.5	2.63
MH2	224.75		
TC1	71.75	74.625	0.35
TC2	77.5		
OR1	172.75	153.125	1.27
OR2	133.5		
GC1	42.75	47.875	0.033
GC2	53		
MC1	46.25	50.875	0.069
MC2	53.75		

### Conclusion

The higher concentration observed in the houses with marble/granite floor and concrete roof and the lower concentration in mud houses clearly indicate the substantial contribution of construction material and type of construction in the enrichment of thoron activity. The concentration might also be affected by climatic conditions, human interference, and site specific characteristics. The estimated annual effective dose and *ELCR* values are higher than the world's average, indicating an additional risk of getting cancer due to occupancy inside the dwellings for a longer time.

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## Extent of Underemployment among Government Service Employees in Kerala

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***Abstract:** Underemployment in the public sector is defined as a situation in which government employees are employed below their education or skill level, or their availability. It is a social problem that affects job growth, career growth and the emotional health of underemployed workers. The study checked the extent of underemployment among Kerala government service employees in the context of their education, age and gender wise analysis. The result revealed that age matters in the perception of employees on underemployment and is negatively related to underemployment. In the case of lower age people, they consider them as underemployed while aged people do not bother about it. Gender and qualification do not play a role in the employee's perception of feeling on underemployment.*

**Key Words:** Government Service, Employees, Underemployment, Kerala.

### 1. Introduction

Recently, underemployment among the educated was probably the most critical problem in Kerala. Though the state has achieved much progress in the spread of education, health services, social welfare measures and infrastructural development, she has not been able to solve the problem of underemployment to any significant extent during the last thirty years. When a large number of educated people compete for a small number of available jobs, the less educated are pushed out by the more educated. This in turn results in the devaluation of higher education leading to underemployment and misemployment of the educated. In this situation of underemployment, people with good education and skills are forced to work less than their

potential. It is a situation where there is a mismatch between the employment opportunities and the skills and education levels of employees.

The proper utilization of educated, especially professionally and technically qualified manpower is important, as this category of manpower involves heavy educational investments (Ajith Kumar K R and Karunakaran N, 2021), both on the part of the individual and of the society as a whole. The oversupply of educated manpower reflects the misdirected and wasteful investment of scarce capital in education. When the supply of workers is greater than the demand for workers it happens. It is a social and economic problem that affects job growth, career growth and emotional health of underemployed workers. Underemployment is a vicious cycle in which each effect is linked to the next.

It is a serious matter when highly qualified employees work in lower qualification required positions in the public sector. It is due to a lack of opportunity or a lack of demand for qualified workers, rather than a lack of educated labor. In recent years, there has been a growing trend of people opting for government jobs. Besides the salary factor, there are pension and other benefits and most importantly job security that make government jobs in India more and more popular. The person who is working in a government sector will get financial and job security as well as honor in serving the public compared to the person who is working in the same designation in a private concern. Not limited to this, government employees have lots of benefits, a fixed income, an increment, etc.

**1.1. Review of Literature:** Rao (1961) conducted a study on Delhi University graduates and found that 3.3 per cent of those who graduated in 1950 and 7.2 percent of 1954 were still unemployed. Mark Blaug *et. al* (1969) made the first comprehensive analytical study on the unemployment of the educated in India. Dhar T.N. (1979) examined the problem of graduate unemployment in India and examined the implications of the social and political framework within which manpower and educational planning are taking place. Bhattacharya A.K. (1982) and Bose *et al.* (1983) conducted a comprehensive study to ascertain the pattern of employment and unemployment among graduates in West Bengal. Usha Kundu (1990) had analyzed the employment position of educated women. Marinakis (1994) discussed that the development of the public sector is based on two main factors, employment and wages. Scurry T and Blenkinsopp J (2011) and

McKee-Ryan and Harvey (2011) explained the overqualification, relative deprivation, self-perceived inferiority and disadvantaged employment situation. Maya John (2022) reported the problem of massive job insecurity among India's youth.

**1.2. Objectives:** The Objectives are

- | to analyze the extent of underemployment and determining factors in public sector employees, and
- | to examine the employee perception regarding underemployment in the public sector

## **2. Materials and Methods**

The study is relied upon primary data. The extent of underemployment among Kerala government service employees has been analyzed on the basis of primary data collected collectively from Kannur Civil Station and Collectorate Kannur, by using a questionnaire method specifically prepared for this purpose. Seventy one samples who are non gazetted government employees mainly focuses on the 3<sup>rd</sup> grade (tenth qualified job) and 4<sup>th</sup> grade (seventh qualified job) workers was taken. The collected information has been analyzed using percentages, average, chi-square test, and dummy variable regression analysis. The Likert scale has been applied to find out the score value of each respondent about their feelings on underemployment, which was used on the basis of age, gender and qualification. The chi square tool is used to analyze the behavioral relationship between employees' gender and their current job satisfaction level.

## **3. Results, Analysis and Discussion**

**3.1. Extent of Underemployment among Kerala Government Sector Employees:** From table 1, qualification and grade of employees in public sector are more from the third grade rather than 4th grade. Majority of employees are graduated and above qualified. In addition, professionally and technically skilled people also work in the tenth based job.

**Table 1: Analysis of Qualification Attained and Grade of Employees in Public Sector**

<b>Educational qualification</b>	<b>No. of 3<sup>rd</sup> grade employees (%)</b>	<b>No. of 4<sup>th</sup> grade employees (%)</b>
Matriculation	6.67	9.9
Plus two/PDC	11.67	9.9
Graduation	43.33	45.45
Post-Graduation	18.33	9.09
Diploma/certificate	8.33	27.27
Professional	11.67	0

Source: primary data

People working with only required minimum qualification (tenth qualification) are below 10% for both grades. When a large number of educated people compete for a limited number of government jobs, the less educated are pushed aside in favour of the more educated. This results in the devaluation of higher education leading to underemployment and misemployment of the educated.

**Table 2: Educational Qualification and Duration in Between Getting the Job**

<b>Duration between education and getting job</b>	<b>SSLC</b>	<b>Plus-two</b>	<b>Diploma</b>	<b>Degree</b>	<b>PG</b>	<b>Professional</b>	<b>Total</b>
Less than 1 year	0	0	0	0	1	1	2 (2.8%)
1 to 3 years	0	0	1	2	2	2	9 (12.7%)
3 to 5 years	0	2	3	8	1	5	19 (26.8%)
5 to 10 years	3	4	2	9	5	3	26 (36.6%)
More than 10 years	3	0	4	8	0	0	15 (21%)

Source: Primary data

It is clearly evident that only 2.8% are getting jobs within one year after studying; even though they are not attaining a job that is apt for their qualification (table 2).

**Table 3: Reasons for Non-Gazetted Officers to Improve Qualification After Getting Job**

Response	Desire of improvement (%)
Improving career or better job	38.09
Facilities offered by organization	4.76
Service benefit	42.85
Out of curiosity	4.76
Any other reason	9.52

Source: Primary data

**3.2. Employee Perception Regarding Underemployment in Government Sector:** About 38.09% of people had their qualification extended after getting job. The majority are obtaining additional qualifications mainly focusing on the scope for promotion; and a few for changing job category. About 39.4% are trying for other posts; the majority of 29.6% of females are not interested, and are not trying for other job categories or posts. Some people consider a job to be their most desired even if it is below their level of qualification (table 3). Women are more satisfied with the scale of pay than men. Females consider the under value of job than under payment. In the case of men, more concentrate on payment, and both considers the underemployment situation.

**3.3. Chi Square Analysis of Satisfaction Level of Employees with Respect of Current Job on the Basis of Gender:** Table 4 shows that gender has no role on the satisfaction level on present job in the public sector.

**Table 4: Expected Value of Chi Square with Satisfaction Level of the Non-Gazetted Employees with Respect to the Current Job**

Satisfaction level	No of non-gazetted employees		
	Male	Female	Grand Total
Satisfied	18	13	31
Not satisfied	23	17	40
Grand Total	41	30	71

$X^2=1.9$

Source: Primary data

**3.4. Extent of Underemployment with the Factors Age, Gender, and Qualification:** The extent of underemployment and age of the employees are negatively significant. That is, aged people do not consider or feel them as underemployed. But in the case of lower aged employees, the extent of underemployment is greater. In other words, when the ages of employees are small, the level of underemployment is more visible. Gender is not a significant factor for the extent of underemployment of employees in the public sector. Gender and qualification of employees do not affect much on the ceiling of underemployment.

#### **4. Conclusion**

In the study, it is expressed that, public sector involves underemployment in the sense that a lower aged person can feel it more than a more aged worker. The majority of the employees working in the tenth or seventh qualified job are highly educated and also involve professionally qualified people. This suggests that both the less educated and the more educated are competing for a limited number of minimum qualification jobs, with the less educated being pushed out by the more educated. The employment opportunities in the state have not increased as much as the increased supply of educated manpower. It can be seen that a large number of graduates and post graduates have taken up jobs, that do not require their skills. This is mainly due to students' plans about their interests, which inspire them to get more qualifications to get the first position in the queue of the job market, and for occupational mobility, thus making them more educated. After completing their education and waiting for a job for many years, people will stay for a job that is lower than their qualifications.

#### **5. Suggestions**

- | To provide new trend-based courses in the Universities
- | To establish practical courses in the Technical and Arts and Science Colleges rather than theoretical courses.
- | To remove outdated courses in the Colleges
- | The government should ensure that fourth grade jobs are carried out by the employees who have minimum qualification only.
- | To give more preference to lower educated people for lower qualified jobs.

- | The government must avoid the tight competition between highly educated people and lower educated for the fourth-grade jobs.
- | Government must provide more technical and skill-based opportunity in public sector.
- | Encourage public-private partnership on providing employment opportunity.

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## Factors Affecting Suicidal Ideation in Adolescents in the Context of Perceived Stress and Peer Pressure

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**Abstract:** *Suicide is a major concern for all age groups nowadays. It is a serious problem that can cause a lot of distress in one's life. It has been an adverse cause of death worldwide, so to see the aetiology of suicide among adolescents; a survey was conducted on 150 school students, age group of 10-19 years, consisting of both males and females. This study was done in order to understand the underlying factors of suicidal ideation in them. The factors taken into consideration were peer pressure and perceived stress. The scales used for the survey are Perceived Stress Scale, Peer Pressure Inventory and Suicidal Ideation Scale. The set hypothesis states that there is a correlation among perceived stress, peer pressure and suicidal ideation. The findings demonstrated that perceived stress has a correlation with suicidal ideation and that an increase in perceived stress causes vulnerability to suicidal ideation. The finding also stated that there is a significant correlation between suicidal ideation and misconduct, which is the domain of peer pressure. Thus, it proves that school students get vulnerable with increase in peer pressure and perceived stress which causes a vulnerability to suicidal ideation.*

**Keywords:** *Suicidal Ideation, Perceived Stress, Peer Pressure, Misconduct, School Students*

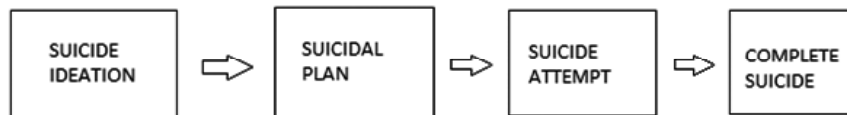
### Introduction

Suicide is a serious public health problem that is becoming a global cause of death and disability. According to World Health Organization reports, approximately 70,300 people commit suicide each year, with many more attempting suicides. It has become one of the leading causes of death among

15-19 years age group taking fourth position as the cause of death. The national suicide rate in 2019 was 10.4 where around 139,122 Indians tried committing suicide. Over the past five decades, the suicide rates in India have increased drastically. Reports suggest there has been a 3.4% increase in suicide rates in India in the year 2019 in comparison to 2018. Suicidal rates among women increased by approximately 11.3% between 1990 and 2016, while they increased by 5.65% among men. Suicide was the leading cause of death among both the 15-29 and 15-39 age groups in 2016. In 2019 the highest death records were received from Maharashtra followed by Tamil Nadu, West Bengal, Madhya Pradesh and Karnataka. The male to female suicide ratio was 70.2:29.8 in 2019 (“Accidental Deaths and Suicides in India – 2019 National Crime Records Bureau”. 2021).

Suicide is referred to as the way in which a person ends his/her life to escape from the impaired thoughts that they develop about themselves and end the suffering which affects them psychologically, physically or socially. Suicide can be defined as the ‘silent enemy’ of an individual (as it’s often referred to) where a person willingly takes his or her life with the intention of killing himself or herself (O’Carroll et al., 1996). Suicidal ideation refers to having thoughts of committing suicide or having thoughts and cognitions of suicide related behaviour. It involves any behavior that is self-initiated and carried out with the intention or expectation to die and includes self-inflicted, active or passive acts (De Leo, Burgis, Bertolote, Kerkof, and Bille-Brahe, 2004). It is important to keep in mind that the thoughts of committing suicide are momentary and can occur when a person is going through some kind of distress. With increased periods of distress, the frequency of suicidal ideation can also increase and become more elaborate such that the individual can try to implement those thoughts and try to kill himself or herself. Suicidal ideation is a crucial part of suicidal attempts and completed suicides (Harris and Barraclough, 1997). The whole process involves various steps like suicide ideation, a suicide plan, an attempt of suicide and completed suicide (See Figure 1) (Vilhjalmsson, Kristjansdottir, and Sveinbjarnardottir, 1998). It is very important to realize and identify the cause of the suicidal ideation during the first stage because only then can the progression of suicide be stopped before any attempts are made. Thus, suicidal ideation plays an

important role in determining and preventing suicide behavior (Palmer, 2004).



**Figure 1: Diagram of the Suicide Process.**

Many people do not admit to having suicidal thoughts but have the potential to commit suicide. There is a misconception that only people who are suffering from depression are at greater risk of suicide. Despite this, nearly 40% of those who attempt suicide are not clinically depressed. Therefore, it shows there are various other factors which can potentially increase the risk. Major factors associated with suicidal ideation are – Depression, Anxiety and Stress. According to the evidence collected from psychological autopsy depression is a major factor related to suicide and suicidal ideation. It was seen that at the time of suicide some people were suffering from depression. But when research was conducted in a clinical setting, out of 1000 patients who had symptoms of depression and suicidality 109 patients (12%) expressed suicidal ideation (Practical suicide-risk management for the busy primary care physician. Anna K McDowell, Timothy W Lineberry, J Michael Bostwick. Mayo Clinic Proceedings, 2011). Depression being positively associated with suicidal ideation can attribute to individuals' feelings of hopelessness, helplessness, and a lack of social support and coping skills when they face difficulties and stressful life experiences.

Another psychological risk factor commonly associated with suicidal ideation is anxiety, although it's relationship with suicidal ideation is inconclusive. The reason behind it is that anxiety evokes symptoms of depression which may lead to suicidal thoughts. Patients who were suffering from anxiety were more likely to have suicidal ideation, attempt suicide and complete suicide in comparison to people without anxiety.

Another risk factor for suicidal ideation is stress. According to a literature concerning suicide, stress is commonly linked with negative experiences of

life related to work-and-life such as stressful events of life, loss, unemployment and other environmental stressors which can lead to suicidal ideation (Psychological factors as predictors of suicidal ideation among adolescents in Malaysia Norhayati Ibrahim, Noh Amit, Melia Wong Yui Suen, 2014).

There are numerous factors associated with the suicidal ideation such as peer pressure and perceived stress. According to Merriam Webster peer pressure can be defined as “a feeling that one must do the same things as other people of one’s age and social group in order to be liked or respected by them.” The pressure of peer groups on adolescents is increasing day by day and is a vital factor that leads to suicidal ideation. Going on with the latest trends to follow the peers advice puts an immense amount of effort on adolescents. This pressure leads them to either take it in a positive way which influences their life or a negative way which ultimately can have a negative outcome. As adolescents spend more time with peers they also participate in and create youth cultures which in turn reinforce the meanings and values of the wider peer group (Larson et.al. 2002). Peers create an important forum for adolescents’ social relationships and the peer group has long been regarded as an important context for the growth to independence.

Relationships outside family such as peer-educator-learner relationship have an adverse effect towards the inclination of suicidal behaviour. Research conducted by Sebate (1999) and Rigby (2000) showed that peer pressure can have a negative effect on adolescents well-being because it damages their ability to identify themselves. Another most significant factor contributing to suicidal behaviour is parent-adolescent conflict followed by peer relationship problems. A teacher-learner relationship is also another important factor in the enhancement of an adolescent’s behaviour if the relationship is supportive.

Another factor that influences suicidal ideation is perceived stress. Perceived Stress is defined as the feelings or thoughts that an individual has about the amount of stress they face under a given time period. Stress can be defined as an individual’s response to events that disrupt or threaten to disrupt their physical or psychological functioning (Lazarus and Folkman, 1984). Unfortunately stress has become a common part of life as it cannot be avoided by most people. Because of its severity and negative effects it poses a question on the well-being of an individual.

Peer pressure comes in a directly proportional relationship with teenagers. Since most people try to fit in from a very young age which nowadays can be witnessed right from the primary school days. Since everything has a positive side as well as a negative side to it peer pressure too has its pros and cons. The positive aspects of it include academic achievement or healthy behaviour, etc. On the other hand the negative aspects are influenced by bullying, drinking alcohol, drug usage, body shaming, etc. which have adverse effects on the well-being of an adolescent. These effects lead to tremendous decline in the self-confidence, self-worth and distancing from family and friends. Thus these effects are positively related to the inclination towards suicidal ideation.

The three variables taken for the study—suicidal ideation, perceived stress and peer pressure are all linked together as the negative peer pressure leads to perceived stress in an individual which causes suicidal thoughts. Friends or peers are the one who have immense impact on a student's life. Peer pressure can cause a sense of crisis in one's life as people try to imitate and belong to other social group. Today's generation is widely occupied by the social media which plays a major role in affecting life of others. In social media especially teens try to compare themselves and a tension is created to act or be like them. Not conforming to it can cause immense stressor or perceived stress which can be increased to a degree of taking one's life or can lead to suicidal ideation. Nowadays, adolescents are so much influenced by their peer group that if something goes wrong they cannot handle it and take the extreme pressure of perceived stress which can lead to suicidal ideation.

**Theoretical Framework:** The two leading theories are the psychological theory of suicidal behaviour (IPT) and the integrated motivational-volitional (IMV) model. Interpersonal theory of suicidal behaviour is one of the most influential theories in suicidology. The two most valid assumptions for having suicidal thoughts are when levels of perceived burdensomeness (defined as a feeling of burden on others) and thwarted belongingness (feeling that you do not belong) are high. Attempts of suicide are taken when the individual's capability for suicide (defined as reduced fear of death and increased tolerance

for physical pain) is also present. A recent meta-analysis yielded clear support for the perceived burdensomeness-suicidal thoughts relationship whereas the evidence for thwarted belongingness was less strong (Chu et al., 2017).

According to the integrated motivational-volitional model of suicidal behaviour (IMV; O' Conner, 2011), another predominant model, proposes that suicidal behaviour results from a complex interplay of motivational and volitional phase factors. Factors within the motivational phase of the model explain how suicidal thoughts emerge in some people but not in others. They include defeat, entrapment, and (lack of) social support. Volitional phase factors, on the other hand, are those factors that govern the transition from suicidal thinking (ideation/intent) to suicidal behaviour; they include exposure to suicide, fearlessness about death and impulsivity. Entrapment is conceptualized as the key driver of suicide ideation within the IMV model. Various studies have indicated that a specific type of entrapment, internal entrapment (defined as trapped by pain triggered by internal thoughts and feelings), is more strongly related to suicide ideation than external entrapment (Owen, Dempsey, Jones, and Gooding, 2018).

Within the network of all available psychological factors, 12 of the 20 factors were uniquely related to suicide ideation, with perceived burdensomeness, internal entrapment, depressive symptoms and history of suicide ideation explaining the most variance (D. De. Beurs et. al., 2019). In the study we try to analyze the association among the peer pressure, perceived stress and suicidal ideation so these models help us to understand the core factors which can have an impact on suicidal ideation. The factors such as perceived burdensomeness, internal entrapment and depressive symptoms can be caused due to stress and thus can lead to change the suicidal thinking to suicidal behavior.

### **Review of Literature**

Suicide has been the highest risk factor among every age group and has become a major factor that affects people's lives. There are certain factors that can determine one's risk of suicide. These can be psychological such as depression, anxiety being the most common as well as some physiological and sociocultural factors. Suicide rates have risen dramatically in recent years, but there has been no comprehensive explanation for how to prevent

them. Before preventing suicidal ideation or suicide one must know the major causes that are leading to such undesirable and destructive thoughts.

A study on, effects of perceived stress and resilience and suicidal behaviors in early adolescents was conducted by Yun-Ling Chen and Po-Hsiu Kuo (2020). The aim of this study is to find the effects of perceived stress and resilience on suicidal ideation. In this study a 1 year longitudinal study was conducted on 1035 junior high school students. Suicidal behaviour, resilience and perceived stress were assessed among the students with the use of logistic regression. It was found that perceived stress was a strong risk factor for suicidal ideation. The participants during this 1 year period, with persistent high-stress had increased risk of Suicidal ideation, plan and attempt than the people who had low-stress.

Another study on, stress and suicidal ideas in adolescents were conducted by Priti Arun, B.S. Chavan (2009) in Chandigarh. This study was conducted to find stress, psychological health and presence of suicidal ideation in school students and the correlation between these variables. Chi-square and Spearman's correlation were used for the statistical analysis. In conclusion, it was seen, students with academic stress and an unsupported environment at home felt life is a burden and had higher rates of suicidal ideation.

There was another study on fatigue: Moderates the relationship between Perceived stress and suicidal ideation conducted by Evan M. Kleiman and Brianna J. Turner et al (2018). The theoretical models of self-harm suggests that high perceived stress and high fatigue might interact to predict the occurrence of short term suicidal ideation and non-suicidal injury. In this study three approaches were examined where each individual's daily stress/fatigue was compared to the entire sample's overall average. When it was compared it was found, the interaction between high daily stress and high daily fatigue predicted greater odds of daily suicidal ideation. Participants who had both elevated perceived stress and fatigue compared to average people and time points experienced suicidal ideation.

A study on Emotional intelligence moderates perceived stress and Suicidal ideation among depressed adolescent inpatients by Abbas Abdollahi et. al, (2016). This study was done in order to find the relationship between perceived stress, emotional intelligence and suicidal ideation. The sample consisted of 202 depressed adolescents from five hospitals in Tehran, Iran. It was seen

that the adolescents with high perceived stress and low emotional intelligence were had more suicidal ideation whereas adolescents with both high perceived stress and emotional intelligence had less suicidal ideation. Thus, the findings suggested that perceived stress acted as a vulnerability factor that increased suicidal ideation among depressed adolescents.

A study on stress, self- esteem and suicidal ideation in late adolescents by Victor R Wilburn and Delores E. Smith. In a group of college students where both stress and self – esteem were significantly related to suicidal Ideation.

Study on perceived stress, depressive symptoms and suicidal ideation in undergraduate women with varying levels of mindfulness by Anastasiades, M.H., Kapoor, S., Wootten, J. et al. (2017). In a group of 928 female undergraduate students, their levels of stress, depressive symptom and suicidal ideation and mindfulness were administered. It was found that mindfulness moderates the effect of depressive symptoms on perceived stress and suicidal ideation.

The survey of relationship between perceived stress, coping strategies and suicidal ideation among students at University of Guilan, Iran by Dr. Farhad Asghari administered the relationship between perceived stress, coping strategies and suicidal ideation among the students. The sample consisted of 300 students (male and female). Results showed there is a significant positive relation between suicidal ideation with perceived stress.

A study by Abbas Abdoilani et al. (2015) was the role of hardiness in decreasing stress and suicidal ideation in a sample of undergraduate students. It was conducted on a sample of 500 students from Malayasia public universities. The questionnaires used were Personalviews Survey, Beck scale for suicidal ideation and the perceived stress scale. It was found that low levels of hardiness students reported more suicidal ideation. The findings made clear that lower hardiness and greater perceived stress significantly predicted the suicidal ideation.

Determinants of suicide related ideation in late life depression: associations with Perceived stress by David Bickford (2019). This study was done on 225 older adults aged 65 and above who had been diagnosed with depression. The findings were that the older adults who had major depression, had a greater risk of suicidal ideation with an increase in perceived stress.

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Depression, suicidal Ideation and Perceived stress in Italian Humanities students: a cross-sectional study was done by Fabrizio Bert et al, (2020). The study was done to assess the association among perceived stress, depressive symptoms and suicidal Ideation in Italian undergraduate students. The conclusion was that chronic disease and higher stress increased the probability of suicidal ideation.

To study the relation between peer pressure and suicidal ideation some of the studies conducted are as follows. A study on suicidal ideation in relation to loneliness, peer pressure and self-efficacy among adolescents was done by Puspa Rani (2013) wherein it was stated that suicidal ideation was positively related to academic stress and peer pressure.

Another study on Psychosocial Factors Contributing to Adolescent Suicidal Ideation by Rachel C. F. Sun and Eadaoin K. P. Hui (2007) which was conducted on 1,358 (680 boys and 678 girls) Hong Kong Chinese adolescents who were divided into younger (12.3 years,  $n=694$ ) and older (15.4 years,  $n=664$ ) age groups showed that family unity and school environment were two important factors in prediction of self-esteem and depression. It was also noticed that peer support is more commonly seen among girls and younger adolescents. However peer conflict on the other hand is more noticeable in older adolescents. The study also showed that family conflict, academic pressure and teacher support were not much significant in this prediction.

Many studies have been conducted on the area of suicide and suicidal ideation in various perspectives and it has been mostly conducted on college students or adults. This research focuses on school students or adolescents which is the age group that forms the foundation of the life. So, it must be considered that the life we live and the things we are exposed to in our early days of life help one to build their personality, thought process and various fields which can help a person to have optimistic or pessimistic behaviour. There can be a lot of factors which can influence the suicidal ideation but, in this study, we are trying to understand the correlation between the peer pressure, perceived stress and suicidal ideation which can affect major parts of a student's life and influence them towards suicidal behaviour.

### **Rationale of the Study**

As because suicide rates are on the rise, particularly among adolescents, age group of 10-19 years, there is an urgent need to investigate the causes and identify the risks and protective factors. The school children are mostly vulnerable to these factors which lead them towards depressive thoughts making them feel hopeless and causing a disruption in their self-concept. This is the most important time in an individual's life when they try to figure themselves out with the help of their peers and their surroundings. Getting too much of negative outcomes from their peer group might make them overthink and feel worthless ultimately making them suffer from perceived stress. If these thoughts and stressors persist for an extended period of time, they can eventually lead to the rupture of one's own thoughts about oneself, leading to suicidal thoughts. This research is necessary to determine the relationship between these factors because each one of them causes a lifelong impairment in their thinking. The major goal of this study is to find out the correlation among these three variables, and how this association can lead to suicidal behavior.

### **Hypotheses**

- H1 : Suicidal Ideation and Peer Pressure will have a significant relationship.
- H2 : Perceived Stress and Suicidal Ideation will have a significant relationship.
- H3 : Perceived Stress and Peer Pressure will have a significant relationship.

### **Sample**

The sample consists of 150 school students, age group of 10-19 years from Auxilium Convent School; the purposive sampling method was used, and the population of Siliguri, West Bengal, and the Darjeeling district was used.

### **Tools and Test**

Peer Pressure Inventory (PPI), Perceived Stress Scale (PSS), and Suicidal Ideation Scale (SIS).

### **Research Design and Statistical Analyses**

The study is a quantitative study that follows a correlational design to assess the association of perceived stress, peer pressure on suicidal ideation and the influence of these factors on it. The data was analyzed using statistical package for social sciences (SPSS). After reviewing descriptive statistics, statistical analysis was conducted on collected data. To find the correlation among the variables, Pearson Correlation was used.

### **Result and Interpretation**

**Table 1: Descriptive Statistics**

	<b>M</b>	<b>SD</b>	<b>N</b>
SIS	17.09	8.061	150
PPI			
(S)	.9423	.85982	150
(M)	-.3437	.98474	150
(P)	.507	.7482	150
(F)	.8115	1.08272	150
(C)	.1963	.49388	150
PSS	22.29	5.409	150

The descriptive statistics of the study, including mean (M) and standard deviation (SD); Skewness and Kurtosis of the variables were also measured. The values for Suicidal Ideation Scale (SIS) ( M=17.09, SD=8.061, Skewness=1.222, Kurtosis=.605 ), for Peer Pressure Inventory: School Involvement (S) (M=.9423, SD=.85982, Skewness= -.054, Kurtosis= -.238 ), Misconduct (M) (M=-.3437, SD=.98474, Skewness= -.536, Kurtosis= .563), Peer Involvement (P) (M=.507, SD=.7482, Skewness= -.109, Kurtosis=2.354), Family Involvement(F) ( M=.8115, SD=1.08272, Skewness=-.134, Kurtosis=.062), Peer Conformity (C) (M=.1963, SD=.49388, Skewness=-.097, Kurtosis=1.761 ); Perceived Stress Scale (PSS) ( M=22.29, SD=5.409, Skewness=.167, Kurtosis= -.375). All the values of the skewness and kurtosis are lying within the range of (-1) to (+1) which confirms the normality of the data.

**Table 2: Correlation Analysis**

The Pearson's correlation analysis was performed to measure the direction and strength between different variables.

	1	2	3	4	5	6	7
1. SIS	1						
PPI							
2. (S)	-.132	1					
3. (M)	.224**	-.311**	1				
4. (P)	.127	-.157	.242**	1			
5. (F)	-.146	.646**	-.413**	-.286**	1		
6. (C)	-.012	.027	.198*	.468**	-.175*	1	
7. PSS	.520**	-.193*	.318**	.161*	-.271**	.083	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

The Pearson's correlation analysis was performed to measure the direction and strength between different variables.

The suicidal ideation scale (SIS) has no correlation with school involvement ( $r = -.132, p < .01$ ), SIS scale has a positive correlation with misconduct ( $r = .224, p < .01$ ), SIS has no correlation with peer involvement ( $r = .127, p < .01$ ), SIS has no correlation with family involvement ( $r = -.146, p < .01$ ), SIS has no correlation with peer conformity ( $r = -.012, p < .01$ ), SIS has a positive correlation with perceived stress scale (PSS) ( $r = .520, p < .01$ ).

School involvement(S) has a correlation with misconduct ( $r = -.311, p < .01$ ), family involvement ( $r = .646, p < .01$ ), and perceived stress scale( $r = -.193, p < .05$ ). S has no correlation with peer involvement ( $r = -.157, p < .01$ ) and peer conformity ( $r = .027, p < .01$ ).

Misconduct has a correlation with peer involvement ( $r = .242, p < .01$ ), family involvement ( $r = -.413, p < .01$ ), peer conformity ( $r = .198, p < .05$ ) and perceived stress scale ( $r = .318, p < .01$ ).

Peer involvement has a correlation with family involvement ( $r = -.286, p < .01$ ), peer conformity ( $r = .468, p < .01$ ), and perceived stress scale ( $r = .161, p < .05$ ). Family involvement has a correlation with peer conformity ( $r = -.175, p < .05$ ) and perceived stress scale ( $r = -.271, p < .01$ ). Peer conformity has no correlation with perceived stress scale ( $r = .083, p < .01$ ).

### **Discussion of the Study**

**Hypothesis 1:** Suicidal Ideation and Peer Pressure will have a significant relationship.

According to the statistical test the null hypothesis is rejected at  $p < 0.01$  level. The estimated Pearson's correlation between Suicidal ideation and Peer pressure is 0.224. Therefore there is a significant correlation with misconduct which is the domain of peer pressure. As adolescents spend most of their time in the educational system, peer pressure plays a crucial and complex role in development of mental health. According to the research conducted on the topic "Student's mental health risks regarding susceptibility to peer pressure" by Jasna Kudek Mirosevic, Mirjana Radetic-Paic, Ivan Prskalo (2021) the results proved that in order to adjust or fit into a particular group the students behaviour confirmed the presence of social control and conformity like for example hanging out with peers who are involved in taking drugs and doing risky tasks when their peers ask them to do so just to look cool and secure a position in the group.

**Hypothesis 2:** Perceived Stress and Suicidal Ideation will have a significant relationship.

The statistical analysis showed the Pearson Correlation between Perceived stress and Suicidal ideation is 0.520,  $p < 0.01$  level which proves that there is a positive correlation. As adolescents are prone to stressful situations it is particularly the most associated factor which causes suicidal attempts because they perceive stress to be a burden which can cause severe mental pressure. There was a study conducted by Dr. Farhad Asghari on the topic Survey of relationship between perceive stress, coping strategies and suicidal ideation among students at University of Guilan, Iran (2013). The results showed a significant positive relation between suicidal ideation with perceived stress.

**Hypothesis 3:** Perceived Stress and Peer Pressure will have a significant relationship.

According to the study the domains of Peer pressure such as misconduct ( $r = 0.198, p < 0.01$ ), family involvement ( $r = -0.413, p < 0.01$ ), peer conformity ( $r = 0.198, p < 0.05$ ), peer involvement ( $r = 0.242, p < 0.01$ ) have significant correlation with Perceived Stress. The high school children as

well as other individuals are prone to conform to the societal pressures which can have an effect on their physical as well as mental well-being. A study was conducted on Perceived stress during undergraduate medical training: a qualitative study by Christina Radcliffe, Helen Lester (2003). Stress related to work, preparation for exam, acquiring professional knowledge and skills all reported as stressful events. A lack of support from the authorities also added to the students stress levels. These stressful situations are caused due to the perceived humiliation that they might face in front of their peers.

### **Implications**

The aim of this study is to understand the factors that are associated with suicidal ideation and the association of suicidal ideation with peer pressure and perceived stress. The current findings have implications for therapists, counselors, social workers, to offer and design a range of programs such as enhancing self-kindness, and mindfulness over daily life activities, thereby reducing their tendency of self-criticism over their inadequacies, flaws and painful events. In accordance with the findings of the study, there should be research on prevention techniques that will later help the individuals prevent suicidal thoughts and attempts.

### **Limitation**

The findings of the study should be viewed within the context of its limitations. The first limitation is that the questionnaires were a self-report inventory so we have to assume the participants answered them accurately and honestly. However, the participants' results seemed socially acceptable which indicates the result has a possibility of biasness. The second limitation is that the participants belonged to only one school i.e. small sample size. The third limitation is that the geographical study area was limited; therefore, the results cannot be generalized to a larger population. The fourth limitation is that the female ratio is greater than male the ratio. The fifth limitation is the cultural perspective as there has been a stereotype about suicide. The sixth limitation is that the questionnaire is not adapted to the Indian population.

### **Conclusion**

The integrated motivational-volitional (IMV) model and the psychological theory of suicidal behaviour (IPT) model were mentioned. The IPT model suggested that high levels of burdensomeness and thwarted belongingness can lead to suicidal thinking. These factors can cause stress in the individual and a fear of not belonging to the group, so they may tend to conform to peer pressure. The IMV model suggested that lack of social support and entrapment cause suicidal attempts. So, lack of social support and entrapment can cause a certain amount of stress in an individual, whereas there is a

sense of belonging to a group, which can be done only by conforming to the peers' demands.

This study contributed to our understanding of the factors that can initiate suicidal thoughts. Through this study, we were able to understand the relationships and their adverse effects on suicidal ideation. It will also assist others in identifying individuals who are at risk of suicidal ideation and taking preventive measures. Understanding the correlation between suicidal ideation and its factors can help provide ways to mitigate suicide.

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## Health, Safety and Welfare Schemes in Association with Job Contracts and Training among Migrant Construction Workers in Gurgaon, India

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**Abstract:** *Post pandemic reimmigration of unorganised construction workers in India too witnessed various ups and downs like other nations. The survey conducted by an NGO in Gurgaon, Haryana state, India highlights health, safety, sanitation, and welfare schemes in association with job contracts and training programs. Quantitative and qualitative analysis of the primary data shows inadequate training programs leading to health and safety hazards among migrant construction workers in the study area. Although half of the work force is satisfied with the working conditions, hardly any of them are registered in any government welfare schemes like e-shram which is designed for unorganised migrant workers in India. The study indicates a dire need for training programs, particularly in the safety and health fields, and recommends focusing on the welfare of the unorganised workers, considering them on par with any other work force in the country who contributes to the GDP (Gross domestic product) of the nation.*

**Key Words:** *Unorganised Migrant Construction Workers, Health and Safety Training, Welfare Schemes.*

### Introduction

The life situation of migrant workers has been studied across the globe. The migration of workers accelerated over the past two decades in India particularly in the field of construction workers. Irrespective of the rules and regulations, the basic amenities provided to migrant workers by employers are still a mirage. Although a few construction companies have worker welfare policies, the vast majority of construction contractors have exploited workers over the years. The agencies that recruit and supply migrant workers walk hand in hand with the employers in the dark reality of exploitation. This

paper focuses on the living conditions of migrant construction workers in the areas of health, safety, sanitation, and related work satisfaction. It is based on a survey of 2670 construction workers from various sectors in Gurgaon, Haryana, India.

The researchers were welcomed by the group of children and mothers in the open space under the scorching sunlight, which depicted the reality of poor facilities for the workers at the work site. The situation across India is no better than Gurgaon, and the studies conducted earlier highlight the supportive data.

### **Safety and Health Welfare**

Most construction sites have adequate safety measures in place. Unfortunately, there are builders who care the least about safety measures. Construction workers are one such migratory group. They may not be pure migrant workers, but they have maximum mobility because of the nature of their work. They have to move from one construction site to another as per the directions of the contractors. The important aspect of such workers is that they form the second largest unorganized sector in India after agriculture workers. There are several factors that make them vulnerable, such as employment, which is always temporary, the employer-employee relationship, which is often fragile and short-lived, and the work itself, which has inherent risks to life and limb due to a lack of safety, health, and welfare facilities (Dhas et al., 2007; Kulkarni, 2007).

Most workers claimed to have a good understanding of safety risks and acknowledged the training that they had received. The Induction, or Injury Incident Free (IIF) training, was commended by most of those interviewed. Nevertheless, managers and co-workers identified occasions where migrant workers demonstrated a lack of awareness of safety hazards. The study revealed that 63.3 % of workers had no proper first aid kit on site available in sufficient numbers and were not aware of its content or usage, while 36.7% of workers reported that there was a proper first aid kit on site.

The majority of workers (66.7%) said that safety inspections were not performed on a regular basis, and only 13.3% strongly agreed that safety inspections were performed on a regular basis. According to the study, 43.3% of workers believe that safety rules and procedures and EHS policies are not available to protect them from accidents, while 13% believe that

safety rules and procedures and EHS (Environmental Health and Safety) policies are available to protect them from accidents (Meena, 2014). Migrant workers had a general lack of awareness of the long-term health impacts of construction work. Many did not perceive that they had any responsibility for managing their own health and safety or understand their rights and responsibilities under current legislation (Dainty et al, 2007).

Studies on the health, safety, and sanitation of migrant construction workers in India and abroad have revealed gaps in how they can be linked to various government welfare schemes for the poor in general, and those for construction workers in particular. The current study conducted among migrant construction workers in Gurgaon, Haryana, India, focused on the awareness level of the workers and their participation in such welfare schemes.

## **Government Welfare Schemes**

### **1. Ayushman Bharat**

Ayushman Bharat Pradhan Mantri Jan Arogya Yojana ('Prime Minister's People's Health Scheme' or PM-JAY; also referred to as Ayushman Bharat National Health Protection Scheme or NHPS) is a national public health insurance fund of the Government of India that aims to provide free access to health insurance coverage for low income earners in the country. Roughly, the bottom 50% of the country qualifies for this scheme. People using the program access their own primary care services from a family doctor. When anyone needs additional care, then PM-JAY provides free secondary health care for those needing specialist treatment and tertiary health care for those requiring hospitalization (*pmjay.gov.in, 2020*).

This programme is part of the Indian government's National Health Policy. It was launched in September 2018 by the Ministry of Health and Family Welfare. The National Health Authority was later established by the same ministry to administer the program. It is a federally sponsored programme that is jointly funded by the federal government and the states. By offering services to 50 crore (500 million) people, it is the world's largest government sponsored healthcare program. The program is means-tested, as its users are people with low income in India (The Economic Times, 2019).

## **2. BOCW**

The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996; the Act is also called the “BOCW Act” is a welfare provision given by the government of India. However, each state has its own set of rules that differ from national standards. It creates hurdles for the employees. According to our investigation, not even 10% of the cess collected is used for the welfare of migrant workers, and the rules once again restrict the registration of migrant construction workers from other states who work in Haryana.

According to the act, the workers should be registered with the BOCW board, and a cess is levied from the employers to organise welfare activities for the workers. The cess is levied, but its utilisation is not properly done. The agencies that recruit the workers are not keen on registering the workers under the scheme.

## **3. E-Shram**

It is the latest welfare registration scheme under the Ministry of Labor for all unorganised workers. The migrant workers are from different states and move to different states as per job availability. Hence, registration in the BOCW of one state may not enable them to avail of the benefits offered by another state. Hence, the majority of the social welfare agencies encourage migrant workers to get registered in E-Shram, run by the central government.

## **4. Job Contracts and Work Training**

Most of the construction companies subcontract the labour force to avoid legal hurdles. Subcontractors, for their part, do not adhere to legal requirements and do not enter into written contracts with individual migrant construction workers. Although labour laws insist on safety training, hardly any contractors adhere to those legal norms and arrange adequate provision for safety training.

## **5. Occupational Safety and Health**

Although there are provisions for the labour department to inspect the work site based on the BOWC Act, hardly any such inspection takes place. Further, cess funds could help treat and rehabilitate workers who have been injured on the job, as is being done in some state schemes. Cess funds can also be used to improve construction workers’ access to health care (Roy et al., 2017). In a meeting of labour officers, a participant revealed that 90%

of the cess collected remains unspent with most of the state government labour departments. The cess fund could have been used to implement safety and health measures, provide medical facilities, and purchase adequate safety equipment for construction sites.

### **Methodology**

An exploratory study is done with ethnography-a qualitative method and survey for quantitative. A few high lights of the experience of the workers are scribed as part of ethnography and the quantitative data is analysed using basic statistical tools. The data is analysed, interpreted, discussed and conclusions are drawn with the objective of active community intervention to enhance various welfare schemes for the benefit of the migrant construction workers.

### **Data Analysis**

The study was conducted between June and October 2022 in the post-pandemic era. The population of the study was the migrant construction workers in selected sectors in Gurgaon, Haryana, and the north and south districts of Delhi. The sample consists of 2670 respondents from Delhi and Haryana. There are 2081 (76.94%) from Gurgaon, 334 (12.51%) from north Delhi, and 255 (9.55%) from south Delhi.

The health-related issues were studied using the ethnography method, and the job contracting, registration, welfare, and work satisfaction were studied using the survey method.

Mrs. Lalitha Ram, a 24-year-old married woman, was at the construction site with her one-year-old baby. Reluctantly, she opened up about her worries. She finds it too difficult to manage the baby as there are no adequate facilities in the work camp where she stays with her husband and family. No proper water facility, no clean toilets; and unhealthy physical surroundings. The baby was pale and appeared to be suffering from malnutrition.

Mrs Geeta, 28 years old and has three children, explained the health hazards she faced at the work site. She had her last delivery at the work site. There was no proper conveyance given to her for hospitalization. She struggled to manage baby care during the postpartum period. The agent was not ready to provide health care facilities, and neither the builders nor the contractors denied their responsibilities to provide necessary health care facilities.

In another work site, a group of women complain about inadequate water and hygiene facilities, and they have to wait for hours together to meet their primary hygiene needs. Although there were several babies and young children found in the work camp, no childcare facility was provided. If anyone falls ill, they have to make their own provision to consult a doctor or seek hospitalization.

There were similar reports at the majority of the work sites we studied. The irresponsible builders, labour officers, exploiting agents, and construction mafia create a health scenario inaccessible to the poor migrant working force, particularly for women and children. The work force's anguish expressed how they suffer as a result of the inadequate health care provided in the work camps.

With regard to the job contracts, no proper written contracts are made between the builders or agents and the laborers. The data collected through the survey are analysed below.

#### **Analysis of the Survey Questions**

The survey data is analysed to find the distribution of the essential variables and also to understand the influencing parameters regarding job satisfaction. The majority (39.85%) of the respondents are from the age group (25-34) years followed by (32.51%) from the (10-24) years group (Table 1). The women's representation in the migration group is only 6.59% (Table 2)

The occupation of the majority of the migrants is construction work (84.79%, Table 3). The rest of them engaged in different types of work, as given in table 3. There were 9.40% involved in daily labour work.

Of the 2670 respondents, 31.84% never had formal education, 16.63% had matriculation, and 17.34 % had passed middle school. Only 3.03% were graduates (Table 4).

The main reason for migration is the non-availability of jobs in the native place (80.41%, Table 5). Surprisingly, 50.90% (Table 6) are satisfied with their current position. 73.03% are unwilling to undergo any skill training (Table 7).

57% of the respondents have not registered under any government social welfare scheme, and 42.25% have registered under any other scheme, which the researchers do not specify. (Table 8).

To understand the association between various factors, the researchers have conducted Chi-Square analysis. As far as bivariate analysis is concerned, there is a significant association between “willingness to training” and “changing work because it is not satisfactory” (Table 9). Similarly, there is a significant association between membership in government social welfare schemes and attendance in health awareness camps (Table 10). Registration with the labour department significantly varies with whether they have a contract before joining the job (Table 11).

A written job contract also significantly depends on whether they have a contract before joining the job (Table 12). It can also be noted that those who have undergone training before joining are most likely to have a written job contract (Table 13). Work satisfaction is also associated with membership in social welfare schemes (Table 14). Similarly, awareness about the work before joining a job is significantly associated with satisfaction obtained in the job (Table 15). 96.32% of them have not made any contract before joining the work (Table 16). Only less than 4% have made a job contract (Table 16,17) showing how severe the vulnerability of migrant construction workers is in city like Gurgaon a hub of MNCs in India. Considering the pre-departure training (Table 18), again less than 4% received training. Despite a lack of training, half of the entire work force reported job satisfaction, which is admirable. The daily work diary is maintained by 36.18% (Table 19). Among those who do not maintain daily work diary 72.96% do not have work satisfaction (Table 19). It could be an indication of the importance of migrant construction workers keeping a daily work diary in order to feel a sense of job satisfaction. Table 20 shows that the very minimum number of workers paid the contractor for the job. However, the reality may be that based on the data, the workers would actually receive the payment after deducting the agency or contract service charges. As far as work satisfaction in the present job is concerned, the influencing factors are: membership in government social welfare schemes, awareness of the work before joining, the contract before joining, a written job contract, pre-departure training, a daily work diary, and whether they have paid the contractor for the job (Table 14 to 20).

**Table 1: Age Distribution**

<b>Age Group</b>	<b>Frequency</b>	<b>Percentage</b>
(10-24)yrs	868	32.51%
(19-24)yrs	2	0.07%
(25-34)yrs	1064	39.85%
(35-44) yrs	492	18.43%
(45-54) yrs	191	7.15%
(55-64) yrs	45	1.69%
65 yrs and above	8	0.30%
<b>Total</b>	<b>2670</b>	<b>100%</b>

Source: Derived from the primary data collected

**Table 2: Gender Distribution**

<b>Gender</b>	<b>Frequency</b>	<b>Percentage</b>
Female	176	6.59%
Male	2493	93.41%
Grand Total	2669	100.00%

Source: Derived from the primary data collected

**Table 3: Distribution of Occupation**

<b>Occupation</b>	<b>Frequency</b>	<b>Percentage</b>
Any daily wage labour work	251	9.40%
Any other	42	1.57%
Civil Defence	1	0.04%
Construction work	2264	84.79%
Domestic work	21	0.79%
Labour	1	0.04%
Not applicable	2	0.07%

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Ragpicking	1	0.04%
SelfEmployed	84	3.15%
Shuttering Labour	1	0.04%
Tri cycle/ e rickshaw	2	0.07%
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Total	2670	100.00%

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Source: Derived from the primary data collected

**Table 4: Distribution of Educational Background**

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<b>Educational Background</b>	<b>Frequency</b>	<b>Percentage</b>
Any other	190	7.12%
Graduate	81	3.03%
Intermediate	203	7.60%
Matriculation (IX-X)	444	16.63%
Middle School (V-VIII)	463	17.34%
Never had any formal education	850	31.84%
Primary level (I-V)	437	16.37%
Vocational Training	2	0.07%
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Total	2670	100.00%

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Source: Derived from the primary data collected.

**Table 5: Reasons for Migrating**

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<b>Reason for migrating</b>	<b>Frequency</b>	<b>Percentage</b>
Family	1	0.04%
For Job	292	10.94%
For Surviving	1	0.04%
Friends	223	8.35%

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Low salary	1	0.04%
No job in native area	2147	80.41%
Own decision	1	0.04%
Poverty	1	0.04%
To earn money	2	0.07%
Wanted change of place	1	0.04%
Total	2670	100.00%

Source: Derived from the primary data collected.

**Table 6:** Satisfaction at Present Work

<b>Satisfaction Level</b>	<b>Frequency</b>	<b>Percentage</b>
No	1311	49.10%
Yes	1359	50.90%
Total	2670	

Source: Derived from the primary data collected.

**Table 7:** Willingness to Undergo Skill Training

<b>Willingness</b>	<b>Frequency</b>	<b>Percentage</b>
No	1950	73.03%
Yes	720	26.97%
Total	2670	

Source: Derived from the primary data collected.

**Table 8: Registration Under Any Government Welfare Scheme**

Any other	1128	42.25%
AYUSHMAN BHARAT	1	0.04%
BOCW	7	0.26%
MGNREGA	11	0.41%
Not registered	1523	57.04%
Grand Total	2670	100.00%

Source: Derived from the data collected.

**Table 9: Willingness to Skill Training Vs. Changing Not Satisfactory Work**

		Change		
		No	Yes	Total
Willingness	No	1886	64	1950
	Yes	422	298	720
	Total	2308	362	2670

Pearson Chi-Square=654.989\*\*\*

Source: Derived from the primary data collected.

**Table 10: Government Social Welfare Scheme Vs. Health Awareness**

		Health Awareness		
		No	Yes	Total
<b>Government Social Welfare Scheme</b>	Any other	882	246	1128
	Ayushman Bharat	0	1	1
	BOCW	5	2	7
	MGNREGA	8	3	11
	Not registered	1421	102	1523
	Total	2316	354	2670

Pearson Chi-Square=219.912\*\*\*

Source: Derived from the primary data collected.

**Table 11: Contract Before Joining Vs Labour Department Registration**

		Labour Department Registration		
		No	Yes	Total
Contract	No	2560	15	2575
	Yes	80	15	95
		2640	30	2670

Pearson Chi-Square=190.75\*\*\*

Source: Derived from the data collected.

**Table 12: Written Job Contract Vs Contract Before Joining**

		Written Job Contract		
		No	Yes	Total
<b>Contract Before Joining</b>	No	2537	38	2575
	Yes	59	36	95
	Total	2596	74	2670

Pearson Chi-Square = 457.97\*\*\*

Source: Derived from the data collected.

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**Table 13: Training Before Joining Vs Written Job Contract**

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		<b>Written Job Contract</b>		
		<b>No</b>	<b>Yes</b>	<b>Total</b>
Training before Joining	Have not taken any vocational training	1425	23	1448
	Non-farm vocational training (Masonry, Carpentry, Electrician, etc)	1069	48	1117
	On farm vocational training (livestock rearing, horticulture, mushroom cultivation, Sericulture)	102	3	105
	Total	2596	74	2670

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Pearson Chi-Square= 19.82\*\*

Source: Derived from the data collected.

**Table 14: Membership in Government Social Welfare Scheme Vs. Work Satisfaction**

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		<b>Work Satisfaction</b>		
		<b>No</b>	<b>Yes</b>	<b>Total</b>
Government Social Welfare Scheme	Any Other	295	833	1128
	Ayushman Bharat	0	1	1
	BOCW	2	5	7
	MGNREGA	5	6	11
	Not registered	1009	514	1523
Total		1311	1359	2670

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Pearson Chi-Square= 419.13\*\*\*

Source: Derived from the data collected.

**Table 15: Work Awareness (Before Joining) Vs. Work Satisfaction**

		Work Satisfaction		
		No	Yes	Total
Work Awareness (before Joining)	No	1246	883	2128
	Yes	65	476	539
	Total	1311	1359	2670

Pearson Chi-Square = 378.31\*\*\*

Source: Derived from the data collected.

**Table 16: Contract Before Joining Vs. Work Satisfaction**

		Work Satisfaction		
		No	Yes	Total
Contract Before Joining	No	1282	1290	2572
	Yes	29	69	95
	Total	1311	1359	2670

Pearson Chi-Square = 17.2\*\*\*

Source: Derived from the data collected.

**Table 17: Written Job Contract Vs. Work Satisfaction**

		Work Satisfaction		
		No	Yes	Total
Written Job Contract	No	1290	1307	2596
	Yes	21	52	73
	Total	1311	1359	2670

Pearson Chi-Square=13.41\*\*

Source: Derived from the data collected.

**Table 18: Pre-departure Training Vs. Work Satisfaction**

		Work Satisfaction		
		No	Yes	Total
Pre-departure training	No	1301	1316	2617
	yes	10	43	53
	Total	1311	1359	2670

Pearson Chi-Square=19.78\*\*\*

Source: Derived from the data collected.

**Table 19: Daily Work Diary Vs. Work Satisfaction**

		Work Satisfaction		
		No	Yes	Total
Daily Work Diary	No	1063	394	1457
	Not applicable	1	246	247
	Yes	247	719	966
	Total	1311	1359	2670

Pearson Chi-Square=784.48\*\*\*

Source: Derived from the data collected.

**Table 20: Paid Contractor Vs. Work Satisfaction**

		Work Satisfaction		
		No	Yes	Total
Paid Contractor for Job	No	1299	1285	2584
	Yes	12	74	86
	Total	1311	1359	2670

Pearson Chi-Square = 44\*\*\*

Source: Derived from the data collected.

## Discussion

Lack of pre-departure training would be a major reason contributing to the fact that none of the participants were aware of safe migration. “If the migrant workers are ignorant about the level of health and safety needed at the work site, they have to obey only what is instructed,” said a supervisor, as per the study by R. Shepherd et al., (2021). Other than cultural values, awareness of health and safety rules is important. Due to inadequate or no training, the current study shows that a lack of such safety awareness is inevitable in the poor working conditions of migrant construction workers. The following studies also confirm this reality. Migrant workers usually in the labour market has lowest possible point entry leading to exploitation, even compromising their safety on site (Fellini et al., 2007; Oswald et al., 2020). Migrant workers are employed in construction because jobs in their preferred field are unavailable (Buckley et al., 2016; Pollard et al., 2008). They are ready to work even at a lower rate of wages than other similar type of workers (Dainty et al., 2007; Fellini et al., 2007) and even tolerate wage theft (Fussell, 2011). Most of them do not lodge any complaints for fear of dismissal or repatriation (Lopez-Jacob et al., 2010), and they also do not report injuries out of fear of reprisal and not being able to afford time off work (Mastrangelo et al., 2010). Migrant workers are often under increased pressure to cut corners and work taking less time, and also given riskier, much dangerous tasks on work site compared to native workers (Menzel and Gutierrez, 2010; Williams, et. Al., 2010). Hence lack of awareness on health and safety is a major problem in the field of migrant construction workers in India as elsewhere.

In the current study, as per the bivariate analysis, there is a significant association between “willingness to training” and “changing work because it is not satisfactory,” “membership in Government Social Welfare Schemes” and “health awareness camps attended,” “labour department registration” and “contract before joining,” “written job contract and contract before joining,” “training before joining” and “written job contract.” According to the study, pre-employment training and participation in government welfare programmes are required to ensure safety and health measures. It also contributes to work satisfaction. However, the majority of the migrant construction workers who were part of the study have not undergone any type of training. Similarly, the majority of them have not enrolled in or are

unaware of any government welfare programs. Following a survey, many contractors were ready to encourage their unorganised workers to become members of BOWC and the Central Government's unorganised workers welfare scheme, e-Shram (the National Database of Unorganized Workers (NDUW), created by the Ministry of Labour and Employment, India).

However, the study showed that there is no association between registration with the labour department and training before joining.

The study's findings highlight the importance of providing proper training to migrant construction workers before placing them on any construction site. It also indicates the mandatory registration of all unorganised migrant workers with government welfare programs. In the Indian context, the e-Shram portal offers a simple registration process. NGOs working for the welfare of migrant construction workers need to focus on this registration and encourage contractors to provide sufficient training in health and safety measures.

### **Conclusion**

The survey conducted among migrant construction workers in Gurgaon highlighted the urgency of providing health and safety training to these workers, preferably at the source stations if it is not feasible at the destination. NGOs involved in welfare programmes for unorganised workers must develop long-term training programmes that focus on worker health and safety, labour laws, and information on various welfare measures provided by government schemes, as well as the contractors' obligations to provide such facilities to their employees. Because the survey was conducted by an NGO in preparation for future training programs, additional qualitative studies on the impact of the same would be conducted.

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## Indian Banking: The Post Covid-19 Scenario

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***Abstract:** Covid-19 hit us suddenly and unexpectedly. It spread far and wide very quickly. The world was not prepared for it, and neither were the businesses. Prolonged lockdowns brought the economy to a standstill. Though it is not a banking crisis as such, it naturally affected the banks. Banks, being the forerunners of the economy, had to think fast and undertake major changes to carry on with their businesses and the services that they provide. This meant certain changes to the systems and procedures that were being normally followed. In order to support the sudden changes, technology adaptation was fast paced and technology solution providers came into the picture. The change that was going on at a certain pace was accelerated. The customers also had to somewhat begin adapting to these new modes of banking experience. The competition has now begun in the technological dynamism, amongst the banks. Will these changes be long lasting or will we return to pre pandemic era of banking, is for the future to tell? The changes are dynamic and, at the present moment looks like they are here to stay. This article looks into the changes that have been inflicted upon the banking industry in India due to Covid-19, and what probable changes are here to stay.*

**Key Words:** Covid-19, Economy, India, Banking Sector, Changes, Technology Adoption.

### 1. Introduction

Financial institutions throughout the world have always been at the forefront of change and adaptation due to challenges, competition and customer expectations. It is evident that the world has now been completely disrupted

by Covid - 19 Pandemic and the Indian Banking System is no exception. It is essential for banks to remain operational during such crises in order to serve their customers. They have set in place various distancing norms to minimise the spread of the virus, but this comes at a huge cost, especially when revenue generation is low. Indian banking is still dependent mostly on physical channels for banking purposes and to making an overnight operational change is not an easy task. Observing the daily numbers of infected people it is likely that the pandemic will not go away any time soon. Thus, this is going to have a long-term impact on the banking system as well. The banking system is the engine of our economy and we cannot let it be slowed down as we begin to build a self-reliant India; as so strongly advocated by the government. With our economy being almost in recession, the positive side is that we are in a world of digital banking scenario. Fortunately, banks in India, primarily the private banks, have long since adapted to the digital world, thus, making them on par with transnational banks. However, public sector banks must brace themselves or face a natural death due to privatization. Though we speak highly of the Indian banks and the Indian Financial system, the question is: are we going to emerge as global giants post Covid - 19? Looking at the post financial meltdown of 2008, where we stood strong despite giants like Lehman Brothers, Washington Mutual and many others filing for bankruptcy (PTI, 2008), we can say a definite yes, but are we big enough to compete with giants from China, America and other developed nations?

One may think of certain predictions; for the Indian financial system relies a lot on them. The multimillionaires in our country do often go for it. But then, this time it is different, the future looks so unpredictable. It is a global issue and we are tied to the thread of Globalisation. Further, the scenario will have a short term or long-term behavioural implications for the customers. Many banks are heavily reliant on face-to-face interactions along with a high usage of papers. Thus, it is the need of the hour to venture for a fast and sustainable operational change in order to survive and be potentially competitive. Therefore, this paper is an effort to see the prospective future of the Indian banking system and it also tries to provide a way forward for continuing operations under continuously changing scenario. Banks need to have a responsive and scalable service channel to respond to customer queries.

The collapse of Lehman Brothers in 2008 led to the full-blown subprime crisis in the world. Many feared the disaster it would bring to the Indian Banking sector. “The Indian banking system is unlikely to be affected by the sub-prime lending crisis in the US, but banks may face problems on account of rising domestic property prices”- HDFC’s Chairman Deepak Parekh (PTI, 2013). In an ever-interdependent financial world, the financial crisis of 2008 had a cascading effect throughout the world. However, the impact on India was less than expected. In his article “A crisis-proof banking sector”, TT Ram Mohan writes, “The pessimists have been proved wrong about the Indian economy — the economy is projected to grow at more than 7% in 2009-10. They are going to be proved even more wrong about the banking sector. The Bankex has outperformed the Sensex during April-December 2009. It rose by 123% while the Sensex rose by 73%. In 2008-09, the Bankex had declined by 40%, a little more than the decline of 37% in the Sensex” (Mohan, 2010). The reasons for this could have been many like low interest payments, high fee income, high interest income or even a more monitored and regulated banking system. Unlike the US where credit was given to clients with poor credit histories, in India the system was more stringent. Further, the Reserve Bank of India had taken steps to insulate the Indian banking system from the crisis. The strong fundamentals of the Indian Banking System along with the guidance of the regulators and the Government also had a positive role to play during the crisis. Of course, the economic reforms of the 90s already had a positive impact on Indian financial health. Nevertheless, as a part of the global playing field, Indian Banking sector had a fair share of its difficulties due to the subprime crisis. An RBI report said, “Though initially it was believed that India was immune to the after-effects of the crisis, it is increasingly being realised that this is not so. Already industry sector is showing signs of fatigue. The threat of elevated fuel and food prices on the domestic inflation is real. Overall, the GDP growth is moderating. With all these developments, India may still achieve a growth rate of about 7.5% to 8% during 2008-09” (RBI, 2022). Though by way of expectation, the growth rate was a positive sign. The growth rate had been around 6.7. Thus, we may say that despite the global financial crisis India was poised for better growth.

This being the scenario in India, the question now arises as to where the Indian Banking Industry stands post covid pandemic. The pandemic has led

to both structural and behavioural change. These changes have led to an impact on the economic activities and the asset quality of the banking sector across the board. We have been witnessing the fast-changing operational functioning of the banks and the adoption of technology in the last two plus years. The Traditional Banking model seems to be a thing of the past and the only way forward is innovation and the adoption of technology to keep pace with the competitors. Though digitisation was in the cards over the years, the pandemic has fast paced the deployment and implementation processes. Challenges have increased as asset quality has suffered a severe downturn due to the pandemic. Banks were hit hard due to the nationwide lockdown when the economic wheels came to a standstill. “As of end-August, around 40% of outstanding loans in the financial system availed of a moratorium” (Gopakumar, 2020). “The heartening news for Indian banks is that India has entered this crisis well-capitalized and “on the up”. Their provision coverage ratios improved to 65% in 2019-20, compared to 41% in 2016-17, and RoE has turned positive to 2.5% after two years of negative readings” (Lal et al., 2020).

## **2. Literature Review**

COVID-19 pandemic might influence the banking sector in several ways. For instance, Aldasoro and Ehlers (2018) mention that the worldwide banking sector holds large-scale US\$ denominated borrowings to financial investments, international trade, and an assorted set of dollar sets. Financial crises squeeze the monetary sector that provides loans, inferring risks for the worldwide financial system (Mirza et al., 2020). The banking system in emerging countries is more affected by the decline in the movement of these funds. Bahaj and Reis (2020) reported that in response to COVID-19, central banks expanded the current swap lines and generated new lines to reduce the costs of dollar financing. Sensible regulatory measures in the banking sector, for instance, easing capital buffers and relaxing the handling of non-performing loans, have been identified as ways to alleviate the COVID-19 negative effects on the stability of the financial system (Goodell, 2020). The study by Demir and Danisman (2021) shows that the equity markets of the economies with tighter regulations are inclined to be more resilient to this pandemic. In response to Basel III liquidity and capital reforms after the 2008 financial crisis, the banking sector is well-positioned to face the severe effects of the

COVID-19 pandemic. Thus, my study tries to see how the COVID-19 pandemic affects banking sector in the near future.

Mishra, Patel and Jain (2021) carried out a research study titled “Impact of Covid-19 Outbreak on Performance of the Indian Banking Sector” showing the effects of Covid-19 in the performance of the Indian banking sector. Kumar and Kumar (2021) carried out a research study titled “Impact of Covid-19 on Indian Economy with Special Reference to Banking Sector: An Indian Perspective” elaborates on the impact of the COVID-19 situation on the Indian economy and its banking sector. Singh and Bodla (2020) carried out a research study titled “Covid-19 Pandemic and Lockdown Impact on India’s Banking Sector: A Systemic Literature Review” presents the impact of the pandemic on Banks and NBFCs due to lockdown.

### **3. Objectives**

Extensive review of the available literature resulted in framing the objectives for this present study. The objectives are;

- i. To comprehend the changes brought about by the COVID-19 pandemic on the Indian banking system.
- ii. To understand how this long pandemic’s effect will shape the future of the Indian banking sector.
- iii. To understand the competitive standing of the banks in the face of technological challenges and how the banks may face up to these challenges.

### **4. Methodology**

This article is descriptive in nature. The study is based on secondary sources of data. Secondary data has been gathered from various sources such as research articles, newspapers, blogs, etc. Based on the secondary data, discussions have been made. However, we have emphasised on the future banking system in India. Further, conclusions and recommendations have been drawn.

### **5. Discussions**

This article attempts to reveal the changes that have occurred in banking services, as well as the future effects of such changes. However, firstly, we have tried to showcase the changes that have occurred in the Indian banking

system due to the present pandemic. Secondly, we have highlighted the challenges and future of the banking sector in India.

### **5.1 Changes in Banking Sector**

The changes that have occurred in the past two years are here to stay in our lives due to the Covid pandemic. What was traditional and normal has changed in many aspects and we have somewhat been accustomed to it. What was carried out in person is now in electronic form. Of course, the traditional methods are there but the changes are being adapted day by day. Webinars and videoconferencing are here to stay and in a profitable way. Imagine how bankers use to travel for conferences and workshops; a huge expenditure. This is now very easily carried out in the online mode; sitting at home or in the branch. Customers, both individual and institutional, have understood the convenience and benefit of digital banking; paperless and time saving. Further, the banks are trying to go more digital day by day. Going digital saves a lot of time doing regular manual job in the branch which could be better utilised for marketing its products by the employees. It is also slowly catering to the environment due to the lesser usage of paper and vehicles. The change is also visible in the customer experience, i.e., how they view the offers by different banks; it is easier to compare in digital form rather than visiting different bank branches. Work from home though not adapted completely in the banking scenario, may be better utilised when there is an emergency task and the employee is on leave. Thus, changes though abruptly forced onto the banks due to the pandemic may very well be a boon in the long run.

### **5.2 Challenges and Future of Banking Sector**

**Smart Banking:** Physical distancing has added to the modernisation of banking operations as well as the customer experience. Customers are getting habituated to multiple touchpoints. The need to visit branches is getting lesser by the day. Technology is making the employees efficient with their task and data in their fingertips. With technology reaching every corner of the world, the reduction in branches will not be an issue as online banking can suffice the requirements of the customers. With lesser usage of papers banks will be more environment friendly.

**Artificial Intelligence:** With globalisation and technological advancement, Indian Banks are no longer competing within the country but are now part of the global business scenario. Thus, competitiveness has to increase in

order to survive in the fast-paced changing business world. The usage of Artificial Intelligence is increasing in various industries. Banks will witness a major change in this area, with collaboration for machine learning, analytics, cloud computing, etc. The new age start-ups including fintechs could be a collaborating force for the future of the banking industry. This needs a cost-effective approach to have maximum profitability.

**Data Security and Operational Smartness:** Protecting customer data is of prime importance in the world of cyberthreats. The customer's trust lies in the secrecy maintained by banks regarding their banking information. With remote working being accepted in many industries, this could be the future of the banking industry as well. And, this will lead to further dangers of cyberthreats. "Moreover, while 50% of banks' data is stored on cloud currently, the transition to 100% will happen over the next two years. These are critical factors to safeguard against" (Mahalingam, 2020). Keeping the usage simple for customers is now a challenge as technological know how is still a distant matter for many of the customers. Customer education in this regard is also of vital importance. The loopholes in the usage of technology are very often misused by fraudsters which could cause damage to the trustworthiness of the banks. Banks need to work on inhouse development of technology to have better monitoring and safeguarding mechanisms.

**Inclusivity:** With technology coming into the scenario in a larger way, banks can expand their reach to the unbanked or less competitive areas. Technology reaching through mobile phones in rural areas can be positively utilised for expanding the base. Areas devoid of the bouquet of services provided by banks in urban areas could be made available to these areas and, therefore, increasing profitability. Digitisation of banking activities will be a booster for banks in the future.

**The Human Touch:** Though we move towards more digitisation, the human element will still play a major role. A personal experience cannot always be replaced by digitisation. The feeling of assurance and security when visiting a branch will be an important element. When it comes to investments, borrowings or higher levels of transactions there is a psychological aspect to them all. Customers will be more satisfied coming to the branch than going digital. So, banks will need to maintain a fine balance between digital banking and physical banking; intelligent spending in these two areas must be well designed to keep competitiveness and profitability in mind.

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**Branches as Service Lounges:** The change is not only in the digital sphere but in the physical infrastructure too. Anyone can see today that many banks have been witnessing fewer customer queues and more personal spaces; especially in the case of private sector banks. Personal consultation and guidance in digital usage will be increasing in the days to come. With the increase in the income group this will also be a welcome change.

**Collaborative Banking:** Partnerships amongst banks may increase due to increased digitisation. With online retailing on the rise, seamless collaboration between the banks will be increasing in the years to come. Customers will benefit from this development in the banking sphere and the banks will have an overall increase in profitability with increased usage of the banking platform.

**Mergers and Acquisitions:** “Even before the pandemic, one of the driving forces for the amalgamation (in the public sector banking space) was the need to scale-up banking. “India needs a lot of banks, but a lot more big banks” (Lele,2021). It is evident that in order to survive in an even more competitive future with focus on digitisation, banks need to come together. The transitional cost burden for smaller banks will be much higher, thus, leading to acquisitions and mergers. If Indian Banks are to compete with global giants, they have to be much larger and stronger. Thus, mergers would make this viable in the future.

**Shifting to Fintechs:** We have been thrust into technology-driven lifestyle quite fast in the last few years. People are increasingly preferring to use banking services via mobile phones and laptop computers whenever they find it convenient. Fintechs are bringing in newer experiences for the customers; faster and with less hassle. Banks are slowly getting overshadowed by new age tech financial companies. Amazon Pay and Google Pay are already in the game in a big way. “Jack Ma, before he was surrounded by Chinese authorities had a word of advice for our banks: Today’s banks continue to have a pawnshop mentality. Collaterals and warranties are pawnshops. This was very advanced once upon a time. But collateralization with a pawnshop mentality is not going to support the financial needs of the world’s development over the next thirty years. We must replace this pawnshop mentality with a credit-based system rooted in big data using today’s technological capabilities” (Rath, 2021). Banks have to appropriately undertake changes to be competitive with new age technology companies.

Will it be a collaborative functioning or one dominating the other in the years to come, will be an interesting change that we shall witness in the future.

**Financing:** The future is expected to see a tremendous amount of credit growth in the area of housing and real estate for the banking sector. With fast population growth, coupled with increased urbanisation and growing incomes, the business opportunity will open up even more. However, the challenge remains to see how banks will compete with other non-banking financial companies. Banks have to be cautious enough to avoid any bubble creation in the real estate sector like we witnessed in the financial crisis of 2008. Also, how fintechs will come to play in this sector is to be seen in the near future. Further, with the growth of the credit card business of banks, retail financing is another segment that is seeing an ever-increasing trend. This has much to do with the younger generation of the work force. With the easy availability of credit, the younger workforce wishes to fulfil their dreams through borrowing. This is a very profitable business and surely there will be more financing companies foraying into this area in the future.

**Cryptocurrencies:** Bitcoins were started with the idea of reducing dependency on third party payment mechanisms like banks and brokerage houses. Though initially the risk of cryptocurrencies was a real concern, today they seem to have better security mechanism and therefore is an attractive investment opportunity for investors. The cryptocurrency mechanism does not make it necessary for the investor to hold a bank account, thus reducing the hold of the bank on the asset. With the increasing trends in digital currency, we cannot be sure about the future of currency. Today, there are debates about its regulation and functionality. However, it may be a real concern for the banks in the future. Banks need to gear up for an unexpected change that might affect their entire existence. Though there are few countries that have legalised cryptocurrencies; there could be a greater addition in the future.

## **6. Conclusion**

With a history of over two and a half centuries, the Indian banks have evolved to stand today among the world class banks. With around six hundred banks before the independence, we now stand at twelve public sector banks, twenty-two private sector banks and forty-three regional rural banks (Wikipedia). The banking system has come a long way and has successfully

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evolved to be robust and a vibrant wheel of the Indian economy. The industry has witnessed nationalisation, scams, mergers, the financial crisis and now the Covid pandemic, among many other milestones in its history. And, the banks have evolved stronger and competitive in today's world. Of course, we have not yet reached the stage where we could be at par with the global giants, yet there is a tremendous potential to be in the global platform. The resilience that the banks have shown during the last financial crisis shows that if right management with determination is there, we could scale greater heights. It is not just an expected future but we may say that it is imperative, or else in a liberalised scenario we may witness our banks getting taken over by foreign banks; the private ones as of now. Thus, post pandemic we may witness many unexpected changes in the banking sphere. The changes and challenges as discussed in this article are there to stay. Now, how will the Indian Banks evolve is what is to be seen in the near future. This change is not just going to affect the Indian Banks but it is a global phenomenon affecting all banks across the globe. The major change will be in the digitisation and artificial intelligence mechanism that the banks will undertake. This will also bring about the challenges of security breach and data theft. Thus, in order to be future ready; which is not very far away, the banking regulatory mechanism has to be robust and in tune with the changing scenario. Though our systems are strong and the regulatory bodies competent enough, they need to look beyond the traditional banking mechanism. We may very well say that it will be banks without borders in the future that may have majority of their functioning through the internet. The Indian banks must come together to face the various challenges and take pride in their competent ability. They are the drivers of our economy and as the Indian economy is poised to scale higher in the years to come, the banks will play the primary role in this regard. Though the foundation of the banking functions will not change the mechanism will be different in the post covid world.

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