

## **“COMPREHENSIVE INSIGHTS INTO COVID-19: INTERLINKING DEMOGRAPHICS, KNOWLEDGE, ATTITUDES, PRACTICES AND LOCAL SELF-GOVERNMENT RESPONSE IN KAIMUR DISTRICT, BIHAR”.**

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### **ABSTRACT**

**Purpose:** This research aims to present a more complete picture of COVID-19 dynamics in the Indian community of Kaimur district by investigating the intersection of demographics, knowledge, attitudes, and practices (KAP). It aims to inform focused public health strategies and treatments customized to Kaimur District's socio-cultural situation. The paper also aims to look at the role of Local Self Government in building knowledge and awareness of COVID-19 in the study area, changing the respondent's attitude towards the pandemic and influencing the practices combating the pandemic.

**Design/Methodology/Approach:** 396 female respondents aged between 18 to 50 years were surveyed using a questionnaire to assess the KAP of COVID-19. This research used a Random Sampling approach, combining quantitative analysis. A systematic survey collects demographic information and examines KAP on COVID-19.

**Findings:** The findings show intricate interactions between demographics, and KAP among the district blocks in female response to COVID-19. Socioeconomic status, educational background, and spiritual beliefs substantially impact perceptions, moulding varied attitudes and behaviours and giving crucial insights for focused public health efforts.

**Conclusion:** Finally, this study sheds light on the intricate interplay of demographics, knowledge, attitudes, and behaviours in the Kaimur district's female response to COVID-19. This thorough understanding guides focused public health initiatives that promote adaptability and resilience in the Bhabhua block complex socio-cultural milieu.

**Originality/Value:** This study's uniqueness stems from its comprehensive research of COVID-19 dynamics in the population of Kaimur District, which provides useful insights for targeted public health policies tailored to the country's distinct socio-cultural setting.

**Keywords:** COVID-19, Demographics, Knowledge, Attitudes, Practices

### **1. INTRODUCTION**

Originating from SARS-CoV-2, the new corona virus surfaced in late 2019 and swiftly spread around the planet, having a significant effect on communities all over the world [1,2]. This virus, which causes respiratory symptoms ranging from mild to severe, spreads quickly, posing a challenge to healthcare systems and requiring exceptional public health precautions. As a result of the virus's primary mode of transmission being respiratory droplets, mask use, social distancing, and vaccine campaigns have become widely accepted preventive measures [3]. Beyond just health, COVID-19 impacts daily lives, economy, and education [4]. To stop the virus's spread, lockdowns and travel restrictions became frequent, changing communication and work habits. The scientific community came together to create vaccinations as a means of prevention and control. The pandemic highlighted the value of international cooperation, public health infrastructure, and personal accountability in addressing the threats posed by emerging infectious illnesses [5]. Future pandemic preparedness and response plans are being shaped by COVID-19 learning experiences, even as globe struggles to contain the virus.

Like many other regions in India, Kaimur district in Bihar encountered tremendous difficulties in fight against the pandemic COVID-19 [6]. Infections spread across the nation in waves, with spikes taxing the resources and systems of healthcare [7]. To stop the virus's spread, the government implemented travel bans, lockdowns around the country, and vaccine drives. Kaimur district's heterogeneous population and varied urban-rural landscape made containment more difficult. The pandemic brought to light problems with the provision of vaccines, inequalities in the healthcare system, and the significance of public awareness [8]. The focus shifted to initiatives to increase diagnosis and treatment capacity, encourage behaviour that is appropriate for the COVID-19 virus, and expedite vaccination rates. The country saw people come together as the government, healthcare professionals, and communities worked to lessen the effects [9,10]. In Kaimur district, the COVID-19 experience helped to shape health crisis plans by highlighting the importance of readiness, fair access to healthcare, and international collaboration in combating new infectious illnesses. The role of the local self-government was tremendous because of their involvement surveillance, awareness generation, relief distribution, vaccination campaigns and community mobilization. The occurrence of pandemic reaffirmed the central role of LSGs in managing crises.

A comprehensive examination of the Kaimur district population's knowledge, attitudes, behaviours, and demographics provides a complex picture of the dynamics of public health. Age and socioeconomic status are two examples of demographic characteristics that [11] when combined with information about knowledge, attitudes, and daily behaviours, shed light on the complex interactions that affect health outcomes. By addressing the many requirements of the population, this all-encompassing approach allows for customized solutions for efficient healthcare interventions, education, and policymaking. It is an essential starting point for creating a society that is knowledgeable and resilient, particularly in bright of current health crises for example COVID-19 outbreak [12].

## **2. STATEMENT OF THE PROBLEM:**

The continuously changing landscape of COVID-19 KAP among different populations highlights the crucial necessity for a comprehensive analysis that specifically focuses on the population of the Kaimur district. Although existing research has provided valuable insights, it primarily pertains to global or specific regional circumstances. Therefore, there is a need for a comprehensive investigation that encompasses various demographic factors such as spirituality, education, and socioeconomic status. This study aims to address this gap by providing in-depth insights into the multifaceted dynamics of how COVID-19 is perceived and responded to within the unique socio-cultural context of the population of the Kaimur district. This research aims to uncover the connections between demographics, knowledge, attitudes, and practices, which can offer valuable implications for public health interventions that are tailored to the diverse and dynamic landscape of the Kaimur district.

## **3. RESEARCH METHODOLOGY**

### **3.1 Research Design**

#### **• Questionnaire Preparation**

This research consists of 63 queries that seek to analyze the relationship between two separate factors. KAP are the factors that make up the Dependent Variable. Independent variables include behaviour, awareness, and SM. As a result, the dependent variable includes three variables: Knowledge (18 questions), Attitude (11 questions), and Practices (10 questions), while the independent variable includes three variables, each with eight questions.

### ● Response Collection

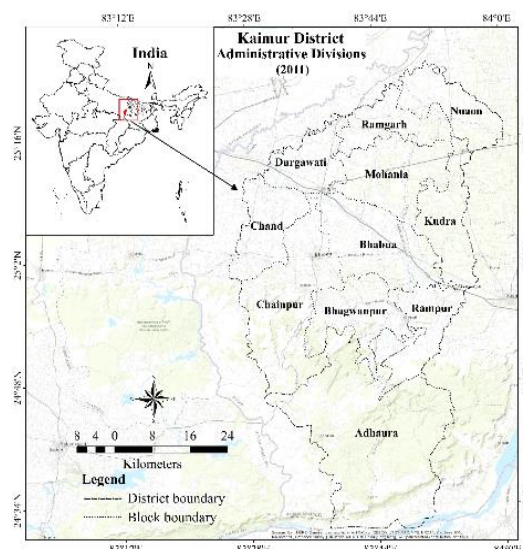
The investigation employed a Google Form as its survey instrument, guaranteeing an inclusive sample from the Kaimur district. The cohort comprised 396 female inhabitants from 11 blocks of Kaimur district. The survey aimed to assess their understanding of COVID-19, their perspectives towards measures implemented to restrain its dissemination, and the precautions they embraced to ensure their well-being amidst the pandemic. The collection of data occurred in February, March, and April of the year 2023.

### ● Statistical Analysis

SPSS is a widely utilized statistical analysis software package that has been used to extensively study and critique the responses provided by Bhabhua inhabitants. Many quantitative approaches were utilized in the study's statistical analysis to carefully investigate and assess the data that was acquired, including regression tests, T-tests, descriptive statistics, correlation analysis, and other quantitative methods. Several statistical techniques were carefully chosen to evaluate reliability & validity of hypothesis under consideration. Application of these tests allowed for a systematic assessment of the relationships, trends, and correlations between the relevant variables, which improved comprehension of the research.

### 3.2 Online Survey and Sample

This study's examination includes a sizable cohort of participants, totalling 396 female people who have willingly supplied their thoughts and data. The study covered all 11 blocks of the Kaimur District. To attract participants, several internet methods such as social media platforms, email lists, and relevant forums have been used. An online survey with a meticulously designed systematic questionnaire was utilized to collect data on the dependent variable (KAP) and independent variables (behaviour, awareness, and SM), as well as other factors relevant to the research objectives and hypotheses. To protect data, the poll was housed on a secure web platform. The questionnaire is divided into sections that cover demographic information, knowledge, attitudes, and practices, as well as behaviour, awareness, and SM. A systematic questionnaire was utilized to gather demographic information, perceptions of KAP, Behaviour, awareness, and societal measurements, as well as other characteristics pertinent to the research objectives and hypotheses, during an online survey. Every participant supplied informed consent before the start of the survey. Using the Random Sampling Approach, this study produced 396 valid samples and 0 invalid samples. The location map of Kaimur District is shown in Figure 1.



### 3.3 Objectives:

This research aims to give a thorough sympathetic of COVID-19 epidemic's effects in the Kaimur district by looking at the population's practices, attitudes, knowledge, and demography. The research attempts to find trends, differences, and influencing variables associated with the pandemic by combining these elements. The evidence-based approaches for public health interventions, policy development, and educational programs customized to the various requirements of the Kaimur populace will be informed by this comprehensive review. The goal of the study is to provide insightful information that will improve reaction, readiness, and resilience to present and future health issues. The key goals of study are as follows:

1. To scrutinize the influences of age, gender, occupation, & socioeconomic position on COVID-19 answers in the population of Kaimur district.
2. To evaluate the society's knowledge of COVID-19 symptoms, transmission, immunization, & preventive measures in Kaimur district.
3. To investigate opinions toward the severity of COVID-19, healthcare trust, and willingness to embrace suggested practices in the Kaimur district.
4. To investigate adherence to preventative measures, vaccination acceptability, healthcare-seeking behaviour, and quarantine compliance in Kaimur district.
5. To understand the role of local self-government in building knowledge and awareness of COVID-19 in the study area, changing the respondent's attitude towards the pandemic and also influencing the practices combating the pandemic.

## 4. THE SAMPLE STUDY

### 4.1 Demographic Characteristics

The data offers insights into the demographic and socio-economic characteristics of the surveyed group. Among age groups, 29.5% are less than 18 years, 27.5% between 19-30 years, and 27.0% in the 31-45 years bracket. Older demographics, 46-50 years account for 16.0% respectively. Geographically, "Adhuara" has the highest representation at 21.7%, followed by "Bhabhua" (18.9%) and "Bhagwanpur" (18.2%). Religiously, 30.8% identify as Hindu, 27.5% as Muslim, and 25.8% as Christian. Sikhs, Buddhists, and Jains constitute 6.3%, 4.0%, and 5.6% respectively. Caste-wise, Scheduled Tribes and Scheduled Castes stand at 41.2% and 40.4% respectively. Other Backward Classes make up 10.6%, and the General Category is 7.8%. Occupationally, 47.5% are employed, 41.4% unemployed, and 11.1% self-employed. Professional roles are occupied by 30.1%, while the service sector has 30.3%. In terms of income, 40.4% are low-income earners, 42.9% are middle-income, and 16.7% are high-income. Educationally, 52.0% are literate, 48.0% not literate. Those with no formal education are 30.6%, high school diploma holders are 28.8%, bachelor's degree holders are 27.0%, postgraduates are 6.6%, and those with associate degrees or vocational training are 7.1%. Overall, the data paints a picture of a diverse population in terms of age, location, religion, caste, occupation, income, and education.

### 4.2 Knowledge

The data discloses that a vast majority of the populace, encompassing young individuals and those from diverse socioeconomic backgrounds, hold the belief that COVID-19 originated in China. The causative agent of this virus is predominantly SARS-CoV-2, followed by H1N1 and Hepatitis B. A significant proportion of the participants adhere to the recommended 6-foot or 2-meter distance protocol, while 54.3% accord priority to local health guidelines about the disposal of infected individuals. The prevailing consensus (86.1%) concurs that COVID-19 is transmissible among individuals, primarily through respiratory droplets. The incubation period, spanning from 2 to 14 days, is generally comprehended. Therapeutic modalities exhibit



heterogeneity, with 62.6% emphasizing the indispensability of supportive care. The perception of vulnerability assumes salience, as 56.6% identify the elderly and those with underlying diseases as the most susceptible. Manifestations encompass fever, cough, and fatigue. Pregnancy is deemed a heightened risk, with 56.3% acknowledging plausible maternal vulnerabilities. Specific maladies, such as cancer and diabetes, are regarded as risk factors by 54.0% of the female respondents.

#### **4.3 Attitude**

The data discloses that a majority of respondents exhibit a preference for proactive measures and an awareness of COVID-19, with 60.1% holding the belief that early detection enhances treatment outcomes and 60.4% asserting that it can be effectively managed within the confines of one's home. Health education is greatly esteemed as a means of averting the disease. Vaccination is staunchly advocated, with 56.3% advocating for the complete administration of the three recommended doses, while 53.5% asserting that everyone should receive the vaccine. However, only 27.0% deem societal awareness to be adequate. The management of the pandemic entails the isolation of patients in specialized facilities, while 54.3% propose the closure of educational institutions during periods of surges. Religious sites are regarded as being balanced, with 52.3% advocating for restrictions and 53.5% emphasizing the need to prepare cities for lockdowns. The data underscores the multifaceted challenges that are presented by the pandemic and underscores the significance of prevention, proactive medical measures, and intermittent stringent controls.

#### **4.4 Practice**

The data provided offers a comprehensive overview of the behaviours and attitudes of respondents towards preventive measures for the COVID-19 pandemic. It is worth noting that there is a consistent and robust positive sentiment observed across all the practices. The majority of respondents demonstrate a strong inclination towards adhering to preventive behaviours, such as refraining from unnecessary outings (50.5% agreement), abstaining from vacations (53.8% agreement), and avoiding physical gestures like handshakes and hugs (53.3% agreement), which receive significant endorsements. Moreover, there is widespread support for practices that emphasize personal hygiene, including frequent handwashing (54.0% agreement) and heightened attention to cleanliness (52.5% agreement). The use of disinfectants (51.8% agreement) and masks (52.3% agreement) also receive substantial approval. Interestingly, while there is a considerable positive response towards traditional herbal products for prevention (48.5% agreement), a notable portion of respondents choose to avoid public transportation (52.3% agreement) and workspaces (53.0% agreement). Overall, the data reflects a community that is largely dedicated to personal and collective safety measures against the pandemic, with the highest endorsements given to practices centred on personal hygiene and social distancing.

#### **4.5 Behaviour**

The survey on Kaimur District attitudes and practices concerning COVID-19 measures found great agreement across all behaviours and high levels of agreement. 51.3% of respondents agreed with regular handwashing and sanitizer use, 52.5% with mask-wearing, 62.1% with social distancing, 57.6% with vaccination, 53.8% with quarantine standards, 59.3% with seeking medical assistance, and 23.7% with information-seeking. Community-wide efforts received 58.6% and 25.0% agreement, respectively. The statistics demonstrate that the Bhabhuablock community is taking a proactive and well-informed approach to COVID-19 prevention, with high levels of agreement across all behaviours. The poll emphasizes the necessity of following quarantine guidelines, receiving immediate medical assistance, and collecting information to prevent the infection from spreading.

#### **4.6 Awareness**

The study found that 54.8% of subjects recognized common COVID-19 symptoms, with 28.0% strongly agreeing. The majority agreed on transmission, with 45.7% agreeing on understanding how COVID-19 spreads and 36.9% agreeing on understanding how COVID-19 spreads. Preventive interventions were supported by 52.8% and 30.8% of respondents, respectively. Healthcare resources were acknowledged by 53.3% and 31.3%, respectively, whereas vaccine awareness was high at 52.5% and 30.8%. 53.5% and 28.5% understood quarantine guidelines, respectively, while 62.6% recognized reputable information sources. Community projects were recognized by 56.6% and 27.0%, respectively, demonstrating a well-informed public with good agreement on important awareness indicators.

#### **4.7 Opinion about the efforts of LSG**

According to the findings, 54.3% of respondents strongly agree that COVID-19 patients should be quarantined in special hospitals, while 58.6% agree and 22.2% strongly agree that educational centres should be closed during a case surge. Religious site restrictions are supported by 60.4% of respondents, with 23.0% strongly supporting them. In terms of city lockdowns and quarantines, 60.1% agree, with 23.7% strongly agreeing. 57.8% agree and 25.3% strongly agree that dedicated COVID-19 hospitals should be established. 56.3% agree and 25.5% strongly believe that educational centres should be closed. Religious site restrictions are supported by 54.0% of respondents, with 28.8% strongly supporting them. Finally, 58.6% agree and 22.2% strongly agree that city lockdowns and quarantine measures should be used.

### **5. DISCUSSION**

#### **5.1 Knowledge**

According to the data, 396 participants scored on 18 knowledge-related criteria, with an average score ranging from 3.92 to 4.07 across many domains. The mean scores varied from 3.86 to 4.07, demonstrating a high level of expertise across multiple disciplines. The standard deviations ranged from 0.895 to 1.055, showing that there was variation around the mean. The precision of the calculated mean was shown by the standard error of mean values. Overall, respondents demonstrated a moderate to high level of knowledge across the tested domains, with some variation in results within each area.

#### **5.2 Attitude**

The statistics show that 396 participants' attitudes were generally consistent across 11 categories. The mean scores varied little, with the majority falling between 3.91 and 3.94, indicating a rather consistent level of attitude. The standard deviations range from 0.914 to 1.122, demonstrating that attitudes vary or are dispersed around these mean values. The standard error of the mean values ranges from 0.046 to 0.056, indicating the dependability of the predicted mean scores. The mean scores for variables "Attitude10" and "Attitude11" were slightly lower, indicating potentially distinct or more polarized attitudes in these specific domains. Overall, the findings reveal a largely consistent attitude pattern across the majority of variables, with considerable fluctuation and potential areas of divergence in certain domains.

#### **5.3 Practice**

The study examined 396 participants' habits across 10 variables. The average scores for practices ranged from 0.963 to 1.105, with standard deviations ranging from 0.963 to 1.105. The mean scores varied in their variability, with values near 1.105 suggesting larger variability. The standard error of the mean values, which ranged between 0.048 and 0.056, revealed information about the dependability of the predicted mean scores. "Practice9" stood out with a mean score of 4.07, indicating that the examined practice may occur more

frequently. Overall, the findings indicate a moderate range of practices across domains, with some variation in specific areas, indicating possible areas for more inquiry or intervention.

#### **5.4 Behaviour**

The study examined 396 participants' habits across eight variables. The mean behaviour scores varied moderately across the dimensions studied, with standard deviations ranging from 0.903 to 0.999. The standard error of mean values ranges between 0.045 and 0.050, providing information about the dependability of the derived mean scores. Across the dimensions, a moderate spectrum of behaviours was portrayed, with discernible variability in select areas, indicating potential focal regions for further investigation or targeted treatments. With a mean score of 3.99, "Behaviour1" stood out slightly, indicating that it may be a more regularly observed behaviour.

#### **5.5 Awareness**

The dataset displays 396 participants' awareness levels across eight domains. The mean values varied from 3.91 to 4.02, with "Awareness2" scoring the highest at 4.02, suggesting increased awareness. The standard deviations ranged from 0.895 to 1.059, demonstrating a wide range of dispersion around the mean scores. Lower standard deviations in "Awareness7" indicate tighter clustering and less unpredictability, whereas higher values in "Awareness2" indicate more variability. The standard error of mean values ranged from 0.045 to 0.053, indicating that the calculated mean scores were precise. The data suggests that individuals had a generally elevated level of awareness, with variances across different dimensions indicating areas for concentration or intervention.

### **6. ROLE OF LOCAL SELF GOVERNMENT:**

**6.1 Local containment and quarantine:** To reduce immediate pressure on the district hospital, the local facilities allowed symptomatic monitoring and initial isolation close to homes. Certain time bound clusters were managed through local containment. Community buildings, schools and panchayat halls were repurposed as quarantine and isolation centres.

**6.2 Surveillance and reporting the cases:** Under the local self-government, the front-line health workers such as ASHA and ANM conducted an active surveillance and door to door screening. Daily updates on drug availability and cases of COVID- 19 were reported in the health centres and were updated on the government portal. There were very limited lab testing centres, but the surveillance efforts of the health workers helped to reduce the pressure on the lab testing centres.

**6.3 Creating awareness about the risks of COVID- 19:** The front-line health workers under the LSG used accurate information on preventive measures and vaccination drives were conducted to control the impacts of the pandemic in the study area. Posters, local WhatsApp groups and verbal announcements were used to counter the misinformation and change the attitude of people towards the pandemic. In some rural pockets with lower health literacy, such communication was crucial in providing information on COVID-19 and ways to handle it without panic.

**6.4 Social protection and relief distribution and migrant management:** The local self-government, along with the Self-help groups and local volunteers contributed in managing ration distribution and food packets to the vulnerable households. They also assisted in community kitchens and food delivery. This helped in keeping the food insecurity in check. Return migration to the rural areas was a big challenge to the health workers. Migrant screening and their containment in community halls helped in controlling the spread of the pandemic.

## 7. DISCUSSIONS

This comprehensive examination explores the intricate nature of COVID-19 dynamics within the Bhabhua block populace, interweaving various aspects such as demographics, and KAP to form a cohesive narrative. It brings to light the nuanced influence of socio cultural factors on individuals' perceptions, with a particular emphasis on the role of demographics in shaping responses. The acquisition of knowledge emerges as a pivotal element, being influenced by diverse sources of information and subsequently reflected in attitudes towards preventive measures and vaccination. The research sheds light on the tangible expression of these dynamics in actual practices, thus providing valuable insights into the adoption of health measures. By encapsulating these interconnected elements, the analysis serves as an indispensable guide for targeted public health interventions, steering the trajectory towards effective strategies that resonate with the diverse socio-demographic landscape of the Kaimur district. Ultimately, it provides a thorough grasp of the complex facets of the epidemic in the Kaimur district, guiding future initiatives and building resilience. The efforts of the health workers and volunteers were commendable in managing the KAP towards the pandemic.

## 8. CONCLUSION

The comprehensive examination of COVID-19 dynamics within the Kaimur district populace highlights the intricate interplay of various factors, including demographics, knowledge, attitudes, and behaviours, in shaping the country's response to the pandemic. The investigation discloses that socio-demographic variables, such as education, socio-economic status, and spiritual beliefs, exert a significant influence on individuals' perspectives and actions in the face of the virus. Furthermore, the impact of diverse sources of information on knowledge acquisition and its subsequent effect on attitudes and behaviours emerges as a crucial theme. The findings not only shed light on the wide range of understandings regarding COVID-19 but also uncover the complex factors that contribute to the acceptance or hesitancy towards preventive measures and vaccination. As the landscape of the pandemic continues to evolve, these insights offer valuable guidance for policymakers, healthcare professionals, and public health initiatives, promoting adaptability and resilience. By recognizing the multifaceted nature of the pandemic within Kaimur district, this analysis contributes to the ongoing discussion on effective plans to mitigate influence of COVID-19 in diverse & dynamic populations.

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