

Preliminary draft/ Extended abstract

Challenges in Death Registration and Usability of Civil Registration System Data in India: A Community-Based and Meta-Analytic Study

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Abstract:

The study has two primary goals: (1) to document community experiences and challenges related to death registration in the Civil Registration System (CRS) and (2) to examine the major barriers to the usability of CRS death data in India. To address the first objective, we conducted qualitative survey in 2023 in Assam, Kerala, and Maharashtra. Data collection involved 23 key informant interviews and 15 focus group discussions with community members. For the second objective, we performed a meta-analysis of publicly available CRS death reports. The community-level analysis revealed seven key themes that capture the functioning of the CRS: (1) availability of community support and assistance, (2) access to registration facilities, (3) inefficiencies and systemic barriers, (4) low awareness and insufficient knowledge (5) purpose and motivation, (6) gender dynamics, and (7) suggested improvements for the system. From the meta-analysis of CRS data, we identified: (1) structural weaknesses in the CRS, (2) incomplete death registration coverage, (3) delayed registration processes, (4) inconsistent availability of age-sex data, and (5) methodological challenges in calculating exposed population for states/districts. This study highlights multi-faceted challenges at both community and structural levels, underscoring the need for targeted improvements in death registration processes and data usability in India.

Introduction

Accurate death registration is fundamental for tracking mortality trends at local, regional, and national levels, serving as a critical tool for improving public health and safety. Mortality data provides policymakers and the public with essential insights into demographic patterns, geographical distribution, and associated medical conditions, as demonstrated during the COVID-19 pandemic (Gill & DeJoseph, 2020). The pandemic highlighted the importance of reliable death registration in India, particularly for understanding the scale and impact of COVID-19-related fatalities. In response, the Ministry of Health and Family Welfare (MoHFW) implemented a comprehensive system for monitoring and reporting COVID-19 deaths across the country, with daily updates provided at the state level. As of May 25, 2023, the official count attributed 531,584 deaths to COVID-19 (MoHFW, 2023). However, the World Health Organization's (WHO) estimate of 4 million COVID-19-related deaths in

India—based on excess mortality models—was met with significant criticism from Indian authorities. The Indian government disputed the validity of the WHO's data collection methods and model assumptions, challenging the feasibility of such estimates (Press Information Bureau, 2022). In the absence of accurate historical weekly mortality data from the Civil Registration System (CRS), deriving precise estimates of excess deaths in India during the pandemic remains difficult.

The study has two primary goals: (1) to document community experiences and challenges related to death registration in the Civil Registration System (CRS) and (2) to examine the major barriers to the usability of CRS death data in India.

Methodology

Primary data

We conducted a primary qualitative survey in three states of India during July-August 2023 with community members (n= 130).

Study area

This study was conducted across three distinct regions of India, representing the eastern, southern, and western parts of the country: Assam, Kerala, and Maharashtra, respectively. To achieve a representative sample, four districts were selected from these states. Specifically, Kamrup district in Assam, Palakkad district in Kerala, and Aurangabad and Beed districts in Maharashtra were included. The selection criteria for these regions were based on the performance of death registration, as reported by the National Family Health Survey (NFHS-2019-21). Assam was categorized as a poorly performing state, with an overall death registration rate of 65.0%, while Maharashtra and Kerala were identified as better-performing states, with registration rates of 89.9% and 97.8%, respectively. Within Assam, Kamrup district, which had a death registration rate of 52.4%, was chosen to explore the challenges faced in regions with comparatively low registration. In Kerala, Palakkad district, with a registration rate of 95.4%, was selected for its significant tribal population, providing critical insights into death registration among indigenous communities. In Maharashtra, Beed district, which had the lowest registration rate of 68.1%, and Aurangabad district, with a rate of 83.2%, were chosen to reflect variations in registration completeness within the same administrative division (Aurangabad division). Block-level selection was performed in consultation with district officials, leading to the inclusion of Hajo block from Kamrup district, Attappady block from Palakkad district, and Ambajogai and Gangapur blocks from Beed and Aurangabad districts in Maharashtra, respectively.

Study design and sample

The primary study is an exploratory study to find out the socio-economic and administrative barriers affecting the level of civil registration of deaths in India and to understand the community's perspective on the issue, focusing on marginalized groups. In total, 20 qualitative in-depth interviews comprising of the CRS staff, 22 key informant interviews, and 15 focus group discussions comprising of community members were conducted. The sampling method used in this study was convenient

sampling. This approach was chosen to select participants who can provide rich and relevant insights into the phenomenon under investigation.

We included CRS staff for in-depth interviews (IDI) to understand the accuracy of death registration and to check if there are any problems that they face from the community or the system. The IDI participants consisted of personnel affiliated with the Civil Registration System (CRS) at different hierarchical levels. This included State-level Births and Deaths administrators, Statistical Assistants, Lower Division Assistants, and Auxiliary Nurse Midwives (ANMs) for Assam. For Kerala, participants comprised Assistant Officers at the district level, Health Inspectors, and Panchayat registrars. In Maharashtra, the interviewees were Statistical Investigators, Extension officers in the Health department, Village Development Officers, and Clerks.

A total of 22 key informant interviews (KIIs) were conducted in this study. These interviews targeted three distinct groups: 1. Individuals over the age of 18 years who had experienced a death in their household in the last five years and had registered the death; 2. Individuals over the age of 18 years who had experienced a death in their household in the last five years but did not register it; 3. Individuals who were not directly associated with CRS but possessed knowledge of the death registration process and contributed to facilitating it within the community. This category encompassed figures such as Gaon burah, ASHA workers (Community Health Worker), Sarpanch (Village Headman), ST promoters, among others.

We conducted a minimum of three focus group discussions (FGD) within each block, resulting in a total of 15 FGDs that consisted of 108 participants. The inclusion criteria for FGD participation included individuals aged at least 18 years from the community who provided their consent to participate in the study.

A semi-structured open-ended questionnaire was developed prior to data collection for in-depth interviews, key informant interviews and focus group discussions. The community members were asked about their socio-economic background, whether they experienced any death in their family in last 5 years, if they registered the death that happened, process of death registration, experience of death registration, and any suggestions to improve the death registration process. The CRS staff were asked about their roles and responsibilities in the death registration process, overall functioning of the death registration, changes and improvements in death registration over time, quality of death registration, challenges faced from the community side or the system side, and suggestions to increase the completeness of death registration. The interviews with participants who consented to audio recording were audio recorded, with durations ranging from fifteen to forty-five minutes.

Data analysis

We anonymised all recorded notes and audio. Thematic analysis was chosen as the method to establish a systematic coding framework for qualitative data in order to identify recurring patterns throughout the dataset. The interview transcripts were initially transcribed in the local languages: Assamese for Assam, Malayalam for Kerala, and Marathi for Maharashtra. Subsequently, we undertook the translation of these transcribed texts into English to facilitate a broader understanding of the emerging themes among a wider audience. Transcripts were organized and categorized according to participant subgroups. For the thematic analysis of the data, we used the qualitative data analysis program Atlas-ti 9.0. For illustrative purposes, we used verbatim quotes.

Ethics Statement

The study protocols were reviewed and approved by the institutional ethical review board at International Institute for Population Sciences (Ref No. IIPS/PSC-68/AADRSIMMS) IRB held on March 24, 2023. We obtained authorisation to conduct the primary data collection in Assam, Kerala and Maharashtra from their respective departments at the state level. Further, informed consent from all the participants were obtained before any interviews and group discussions were conducted.

Secondary data

We reviewed the annual report of Civil Registration System of India, examined the mannuals and carried out the analysis of death registration data in National Family Health Survey 2019-21.

Results of Primary data

Description of the respondents

Table 1. Background characteristics of the Participants of Key-informant Interviews, Assam, Kerala and Maharashtra

Sr. No.	Age	Sex	Background characteristics	
			Schooling in years	State
KII 1	53	F	0	Kerala
KII 2	67	M	0	Kerala
KII 3	21	F	12	Kerala
KII 4	43	F	14	Kerala
KII 5	52	M	15	Kerala
KII 6	32	M	12	Assam
KII 7	32	M	15	Assam
KII 8	55	M	9	Assam
KII 9	34	M	10	Maharashtra
KII 10	43	M	15	Maharashtra
KII 11	39	M	12	Maharashtra
KII 12	43	M	17	Maharashtra
KII 13	60	M	12	Maharashtra
KII 14	73	M	4	Maharashtra
KII 15	42	F	10	Maharashtra
KII 16	43	F	10	Maharashtra
KII 17	56	F	0	Maharashtra
KII 18	40	F	0	Maharashtra
KII 19	45	M	10	Maharashtra
KII 20	39	F	10	Maharashtra
KII 21	46	F	12	Maharashtra
KII 22	34	F	12	Maharashtra
KII 23	43	F	15	Maharashtra

Table 2. Background characteristics of the of Participants of Focus group discussion, Assam, Kerala, and Maharashtra 2023

Sr. No.	Mean age in years and range	Sex		State
		Male	Female	
FGD1	50 (37-68)	-	11	Kerala
FGD2	46 (22-72)	-	9	Kerala
FGD3	56 (37-70)	-	10	Kerala
FGD1	39 (27-58)	3	4	Assam
FGD2	45 (37-50)	8	-	Assam
FGD3	51 (37-60)	8	-	Assam
FGD1	36 (20-75)	9	-	Maharastra
FGD2	36 (23-75)	-	5	Maharastra
FGD3	38 (33-45)	-	5	Maharastra
FGD4	61 (31-70)	-	7	Maharastra
FGD5	47 (37-61)	-	5	Maharastra
FGD6	37 (30-45)	-	8	Maharastra
FGD7	35 (30-45)	-	6	Maharastra
FGD8	44 (38-53)	-	5	Maharastra
FGD9	54 (39-63)	-	5	Maharastra

Thematic Analysis for FGD and KII

Based on FGDs, we identified seven themes based on the experiences of the respondents that highlights the functioning of the system at the community level and the challenges faced by them: 1) Availability of community support and assistance, 2) Access to Facilities, 3) Inefficiencies and challenges, 4) Purpose/Motivation of death registration, 5) Awareness and knowledge of registration process, 6) Gender dynamics of registration, and 7) Suggested improvements

- 1. Community support and assistance:** Majority of the participants in Kerala and Maharashtra mentioned receiving assistance and guidance from various community members during the death certificate application process. This support primarily came from the ward members, Scheduled Tribe promoters (ST promoters), and other community resources. These sources played a significant role in helping participants navigate the administrative tasks involved in obtaining a death certificate.

“To be honest, I took the registration form to the Panchayat office as instructed. I was unsure about how to fill out the required forms correctly. Thankfully, there was an ST promoter named

Geeta in our community who came to my aid. Geeta kindly offered to complete the forms on my behalf, which was an enormous relief.” (46 years old female, Kerala).

“I was not in the condition to do anything after my husband died. But the clerk from the Gram Panchayat came to my home and asked me the details about my husband and registered his death.” (40 years old female, Maharashtra)

In contrast to the situation in Kerala, participants in Assam did not receive much support or guidance from the government officials while applying for the death certificate. It was highlighted that they had to do most of the work.

“No, No. Nobody helped me in this process. I had to do it myself.” (42 years old female, Assam)

“Yeah, they explain about the procedure and also provide the form” (32 years old male, Assam)

The community members in Kerala also expressed the idea that neighbours and fellow villagers come together to help one another in times of trouble, such as medical issues or difficulties with death registration. There is a sense of solidarity within the community, where individuals support each other in times of need. This support is especially vital for those who are less educated or unfamiliar with registration processes.

“I was not aware of the registration process, the situation at my house was very difficult at my place so I asked my friend to do the registration. He went to the Gram Panchayat office and did the registration on my behalf.” (39 years old male, Maharashtra)

- 2. Lack of access to registration center:** The participants in Assam and Kerala expressed difficulties associated with the long distances they had to travel to access government registration facilities for obtaining death certificates. These journeys, often taking an entire day, posed practical challenges and led to the need for multiple visits. The inconvenience of long-distance travel not only consumed valuable time but also placed additional burdens on individuals and families already coping with the emotional strain of a loved one's passing.

“The distance poses a significant challenge for the people here. It takes roughly 15 kilometers to reach Sholayoor Panchayat, and we typically need to use at least two vehicles to get there. Due to this considerable distance, we must allocate an entire day for these tasks, along with the necessary funds for travel expenses.” (27 years old female, Kerala)

“If someone has to go register death with no benefits, then he has to leave his work and go to register. Do you think a daily wage worker will leave his daily source of income to get a death certificate which is of no use? The distance is About 16-17 kms. From here it is 11-12

kms to the main road. Then from there another 4-5 kms to the Hajo PHC.” (45 years old male, Assam)

WHAT ABOUT MAHARASHTRA?

- 3. Delay in getting the certificate and challenges:** Participants expressed concerns about the efficiency of the application process, which often required multiple visits to government offices and facing officials who may not immediately assist. Some participants in Assam mentioned facing issues related to bribery, with some government officials and doctors demanding money for providing certificate or signatures.

“Even the doctor first denied giving his signature. And the doctor took money for his signature that I have to say....5000 rupees. Since the death occurred on the way and neither at home nor at hospital, therefore he took the money. What could I do? I needed the certificate and so I had to pay.” (42 years old female, Assam)

“In order to obtain the death certificate, we often have to make at least two trips to the Panchayat office, which means missing two days of our labor work. Even if we sacrifice our wages for these days, it doesn't guarantee that we'll receive the certificate promptly. Additionally, we have to spend money on travel and food during these trips.” (57 years old female, Kerala)

The participants shared their experiences of significant delays in obtaining death certificates, which proved to be a common challenge in Assam and in Kerala. These delays ranged from weeks to several months and were attributed to various factors, including administrative issues and staff shortages at government offices. The extended waiting periods for these crucial documents impacted the timely access to associated benefits, such as pensions and property transfers.

“When we've diligently prepared all the necessary documents and applications and then go to the Panchayat, it can be quite frustrating to encounter officials who tell us that our application is incorrect or that we're doing things the wrong way. I personally faced this situation when applying for the widow's pension. Similarly, when I went to obtain a death certificate, the officials at the Panchayat office would often tell me that your certificate is not ready today, and you should come back next week. This resulted in numerous difficulties and challenges while trying to acquire the death certificate. I had to make multiple visits to the Panchayat to submit my application, inquire about the certificate's status, and eventually collect it.” (70 years old female, Kerala)

“It took approximately 3 months to receive the certificate” (37 years old male, Assam)

There was a sense of discontent among some participants, particularly regarding the perceived lack of effective support from government officials. Some expressed mistrust in government offices and officials, suggesting that there was a gap between expectations and actual assistance

provided. Participants also expressed that there is no official outreach or assistance from government officials, ASHA workers, or ANMs to educate and motivate people to register deaths.

“My 3 sons died, one died in a bike accident, one committed suicide by jumping in the well and one was shot dead by mob. I went to the Gram Panchayat office to register their deaths but they refused to do it. Not just that, since we belong from Bhilla caste, they refuse to help us in any way. But when it is the time of election, everyone would sit in my house and take us to give them votes.” (56 years old female, Maharashtra)

“The Gram Panchayat office or the Gram Sevak (Village Development Officer) never takes any initiative to help people who are in need. They do not care about any registration unless they have elections and they have to submit the progress report of the village to their superiors.” (35 years old male, Maharashtra)

“We have never seen anyone from the Gram Panchayat office spreading awareness about the death registration. The people who know about it register the death and if someone doesn't know and doesn't need the certificate, they don't bother registering it” (63 years old male, Maharashtra)

“No. It's like I told you, if you need the certificate then you will have to find a way and acquire it.” (43 years old male, Assam)

- 4. Purpose/Motivation of death registration:** Participants highlight various reasons for obtaining a death certificate, such as transferring property from the deceased to their heirs, particularly for land ownership. They also mention its significance in cases of government benefits, bank accounts, LIC claims, and welfare schemes, like Bidhova (widow) pension.

“Without this certificate, our access to various benefits and privileges is severely limited. In fact, possessing this certificate becomes instrumental in securing certain financial assistance, like obtaining a home loan. Lenders typically require the presentation of this certificate to substantiate our single ownership status, which is often a prerequisite for loan approval. Moreover, the process of changing property ownership from a deceased husband's name to our own is mandated by law, and a death certificate serves as a vital document to facilitate this transition.” (70 years old female, Kerala)

“I needed it for pension... also for the legal heir certificate. A proof of whether I am his wife or not, whether the kids are his or not. I had to do it in court.” (42 years old female, Assam)

“I applied for the certificate to claim the benefits of the LIC policy. I had taken life insurance in his name and I knew it would need a death certificate to certify the claim. He also had property in his name so for transferring the name also I needed it” (43 years old male, Maharashtra)

- 5. Low awareness and insufficient knowledge of registration process:** Several participants expressed a lack of awareness regarding the importance of death registration in Maharashtra and Assam. Even though they acknowledge the need for registration, they express limited knowledge about the specific procedures involved. It was also noted that the awareness was increasing, especially among the educated and younger generation.

“It was required for some job-related matters after my father’s death. We had to submit the death certificate for those purposes. This is the context I’m familiar with. I’m not aware of other reasons.” (42 years old male, Assam)

“I haven’t required it yet, so I’m not familiar. However, if the need arises, I will learn about it. Moreover, the deaths in my family occurred around 10-20 years ago, and this process wasn’t necessary back then.” (60 years old male, Assam)

“There has not been any death in my family so I am not aware of the process at all. Will you please tell what it is so that it will be helpful for me in the future.” (25 years old male, Maharashtra)

- 6. Gender dynamics of death registration:** Participants in Kerala highlighted the role of women in handling tasks like registration and application submissions, as some men in the community are alcoholics and not reliable for such communities. Women in the community take the lead in applying for and obtaining death certificates. They demonstrate determination and a willingness to fulfill these responsibilities.

“You know, it’s quite rare to see the men in our household take the lead when it comes to something like applying for a death certificate.” (50 years old female, Kerala)

“It’s noteworthy that women in our community often lead the way when it comes to obtaining certificates and handling administrative tasks. We demonstrate a strong sense of determination and a desire to accomplish these responsibilities. In contrast, if men from our community were tasked with similar responsibilities, it’s true that they might not act, and some might even engage in undesirable activities such as drinking toddy. If they (men) get 100 rupees, they drink toddy, they have no desire to do anything else.” (54 years old female, Kerala)

In contrast to Kerala, participants in Maharashtra expressed that women do not have any part in death registration process and it’s them who does the registration as women are usually not aware of the process.

“It is us (men) who go for death registration. I don’t even think that the women at my house would know what the process is.” (45 years old male, Maharashtra)

“No, I do not know the process. My husband did the entire registration process when my father-in-law passed away” (28 years old female, Maharashtra)

7. **Suggested improvements:** Participants highlighted the need for more streamlined and efficient processes to reduce the time and effort required to obtain death certificate. They suggested that the process of obtaining a death certificate should be expedited, ideally resulting in same day issuance.

“In my opinion, there should be a system to get the certificate on the same day it is applied, because we have to go once or twice to apply and then it is difficult to receive the certificate. One of my opinions is that everything should happen timely. Here, whatever we give an application to the panchayat, we will not get it at the time we thought, they will do it at the time they (the authorities) want.” (60 years old female, Kerala)

Participants suggested offering incentives for registering deaths can serve as a powerful motivator to encourage timely and accurate registration.

“If the government gives money for registering death, then everyone will do it.” (48 years old male, Assam)

Participants also expressed the possibility of introducing online death certificate registration although some participants prefer the traditional method.

“See, not everyone here is really familiar with these online things, you know. But I’ve seen that the young ones who are always glued to their smartphones could really benefit from this online way. These days, everything seems to be happening on the internet. That could be quite convenient, I must say.” (43 years old male, Assam)

Several participants suggested increasing the time duration for registering the deaths as it is very difficult to finish the process in 21 days because of the rites and rituals. Additionally, participants suggested that the most effective way to improve death registration would be simply to spread awareness about the topic.

“I think the members of the Gram Panchayat should spread the awareness of this topic among the community. There are so many old people in the village and they are not aware of anything. So, the members should help them efficiently.” (35 years old male, Maharashtra)

“For me the time limit for registration must be increased. Also there should be more awareness among people about death registration. Like I said many people are not aware that death registration and obtaining a death certificate are essential legal procedures following a person’s passing. The need for a death certificate may not be apparent unless specific circumstances arise, such as claiming insurance benefits, settling financial matters, or handling property and assets.” (32 years old male, Assam)

Participants in the discussion raised the suggestion of increasing the late fee fine for delayed registration of deaths. They argued that a more substantial penalty for late registration would

act as a stronger deterrent and encourage people to register deaths promptly. By imposing a higher fine, individuals might be more inclined to complete the process within the required timeframe.

“I think if the government increase the fine on delayed registration, then people would run to the Gram Panchayat office to register the deaths on time.” (67 years old male, Maharashtra)

Results from the secondary data

Structural issues in the Civil Registration System in India

In India, civil registration has a long history that began in the middle of the nineteenth century (Sekhar, 1872). However, as the administrative systems differed considerably across India prior to independence, the timing of its introduction and the modality also varied across space. Some uniformity was achieved after the introduction of the Registration of Births and Deaths Act in 1969 (RBD Act, 1969). Interestingly, the position of the chief registrars at state

level are not dedicated posts for the CRS. The role of Chief Registrars at the state level are usually played by some other officials say, in Delhi, the Director of Economics and Statistics plays the additional responsibility whereas in Assam Director of Health Services plays the role of Chief Registrars.

The registration process varies greatly across the states; specifics are provided below (ORGI, 2022): -

- ❖ In 17 States and 4 Union Territories, the Chief Registrars of Births and Deaths come from the Health Department; in 10 States and 1 UT, they come from the Planning, Economics & Statistics Department; in 1 State (Kerala), they come from the Panchayat Department; and in the remaining UT, Puducherry, they come from the Local Administration Department.
- ❖ District Registrars are appointed by district-level officials in the States and UTs, such as District Collectors, District Magistrates, Additional Collectors, Civil Surgeons, Chief Medical Officers, District Medical and Health, Deputy Commissioners, Deputy Directors, Panchayat, and Dy. Directors, Local Administration.
- ❖ The officials of the Panchayat Department, Health Department, Revenue Department, Education Department, and Police Department in rural areas of States/UTs oversee registration activities at the rural level. In urban areas, the Executive Officer of the town administration serves as the Registrar of Births and Deaths, or in the absence of such a position, the Health Officer of Municipal Corporation / Municipalities, etc. (Detail of registration functionaries at different levels for some states is provided in Table 1).

It is clear from above that there is considerable variation in the administrative structure and original responsibilities of the registrars among and within states, due to this several technical difficulties arise in smooth functioning of the CRS. However, the data collected by the system indicate that functional intersectoral collaboration exists but needs to be improved and re-aligned. For example,

after Haryana state moved responsibility for birth and death registration from the police to the health sector in 2005, there was a significant rise in data collecting (Gupta et al., 2016; ORGI, 2022).

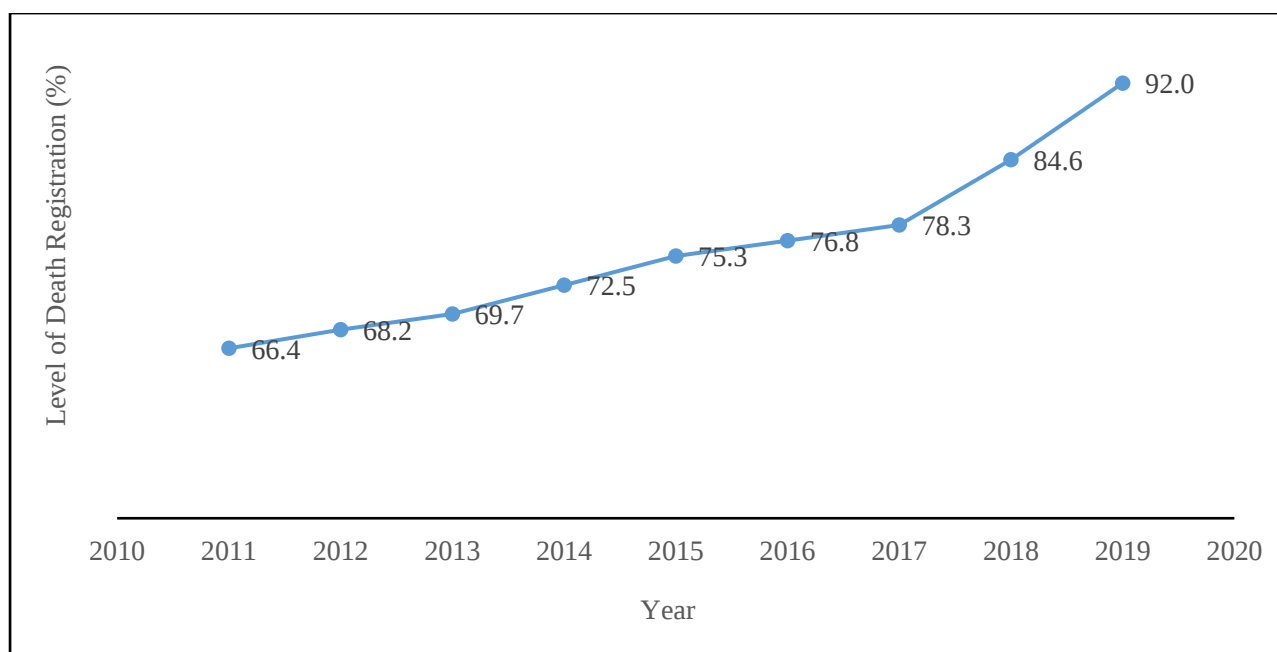
Coordination between the implementing departments is crucial for resolving operational issues and ensuring proper implementation of the RBD Act's and the State Rules' provisions, but in most States and Union Territories, the work of registering births and deaths is carried out by officials from multiple departments of the State Government/Union Territory Administration. For the system to operate effectively in each State, coordination between the stakeholder departments is a requirement. The State level Inter-Departmental Coordination Committees (IDCCs) have been established in States and Union Territories considering the aforementioned. Most States and UTs have an IDCC committee that is presided over by the Principal Secretary or Secretary of the Department that the Chief Registrar is a part of (ORGI, 2022). In many States, these coordination committees have also been established at the district level and below (i.e., the mandal and taluka levels) (ORGI, 2022). The positive impact of the IDCC committee is that it makes the process simpler to formulate initiatives by meeting once a year to discuss strategies to further enhance the Civil Registration System and effectively implement the RBD Act's provisions in the respective State. However, it has been noted that the majority of States/UTs have not scheduled such meetings on a regular basis, despite ORGI's periodic attempts to persuade the State Governments to do so (ORGI, 2022).

Any such strengthening activities need to emphasize the roles and responsibilities of private health facilities and personnel in the registration of births, deaths and causes of death. There is scope to increase the coverage of the certification scheme in several states, as well as to improve the reporting compliance of both government and private health facilities (Gupta et al., 2016).

Incomplete Registration: Status of Death Registration from Nationally Representative Data

According to the CRS Report 2020, India's current level of reporting is at 96% (ORGI, 2022). Level of registration of deaths grew from 66.4% in 2011 to 92.0% in 2019, showing a rise of 25.6% over the previous 9 years (ORGI, 2019). Figure 1 depicts the trend in level of registration of deaths from 2011 to 2019.

Figure 1 Level of Registration of Deaths at the National Level, India, 2011-2019

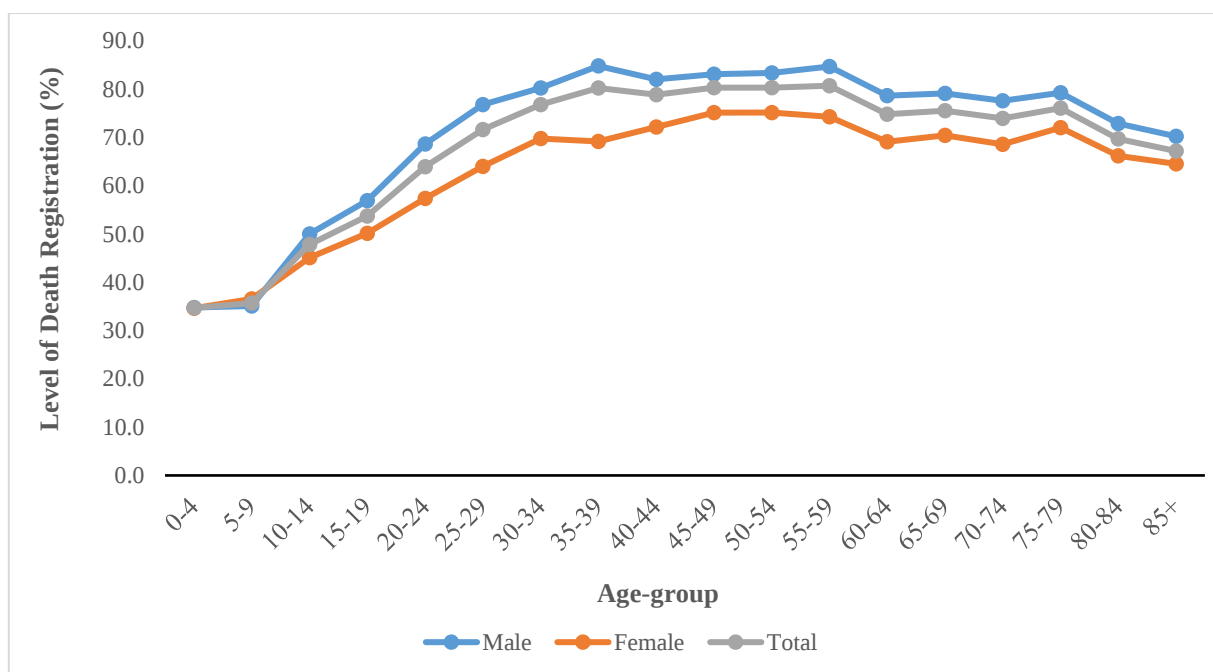


Source: Report on Vital Statistics of India based on Civil Registration System, 2011-2019

According to the 5th round of National Family Health Survey (NFHS-5) (2019-21) (a nationally representative large-scale survey in India), about 70% of the deaths in India are registered. It is far lower than those estimated by ORGI (as shown in the Figure 1). Overall, 74.6% of male deaths are registered and 65.7% of female deaths are registered with the civil authority in India during the 3 years preceding the survey. It reveals that there is huge gap between the death registration coverage estimate of ORGI and NFHS-5 (2019-2020).

Figure 2 shows level of death registration in India by Age-group and sex, NFHS-5 (2019-21). It is observed from figure 2 that death registration was highest for deceased persons aged 55-59 years (80.7%), 50-54 years (80.3%), 45-49 years (80.3%) and was lowest for deceased children aged 0-4 years (34.7%). Among deceased males, death registration was highest for deceased males aged 35-39 years (84.8%), 55-59 years (84.7%), 50-54 years (83.4%), and was lowest for deceased male children aged 0-4 years (34.8%). Death registration was highest for deceased females aged 50-54 years (75.1%), 45-49 years (75.1%), 55-59 years (74.3%) and was lowest for deceased female children aged 0-4 years (34.7%)

Figure 2 Level of Death Registration in India by Age-group and Sex, NFHS-5 (2019-21)



Source: National Family Health Survey (NFHS-5), 2019-21: India Report

Figure 3 and Figure 4 show the State/UT wise distribution of death registration level by sex in India NFHS-5 (2019-21). In Fig. 3, Male death registration is the highest in Goa (100%), followed by Kerala (98.38%), Himachal Pradesh (94.90%), Tamil Nadu (94.80%), and Gujarat (94.23%), and male death registration is lowest in Arunachal Pradesh (38.47%), followed by Nagaland (39.11%), Bihar (42.07%), Jharkhand (45.29%), Manipur (46.69%). There are seven states, namely Maharashtra (91.3%), Mizoram (90.1%), Karnataka (88.9%), Haryana (88.6%), Tripura (84.9%), Arunachal Pradesh (83.7%), West Bengal (82.8%) and Rajasthan (81.0%) where level of male death registration is between 90-80%. Level of male death registration is between 80-50% in eight states, namely Telangana (79.5%), Chhattisgarh (79.0%), Sikkim (77.3%), Uttarakhand (76.3%), Odisha (74.4%), Assam (69.8%), Meghalaya (55.1%) and Uttar Pradesh (52.4%). There is only one state where male death registration level is 100 per cent of the total registered male deaths (Goa) and there are five states, namely Manipur (46.7%), Jharkhand (45.3%), Bihar (42.1%), Nagaland (39.1%) and Arunachal Pradesh (38.5%) where male death registration level is lower than 50%. Among the Union Territories, male death registration level is highest in Lakshadweep (98.3%) and lowest in Ladakh (74.6%).

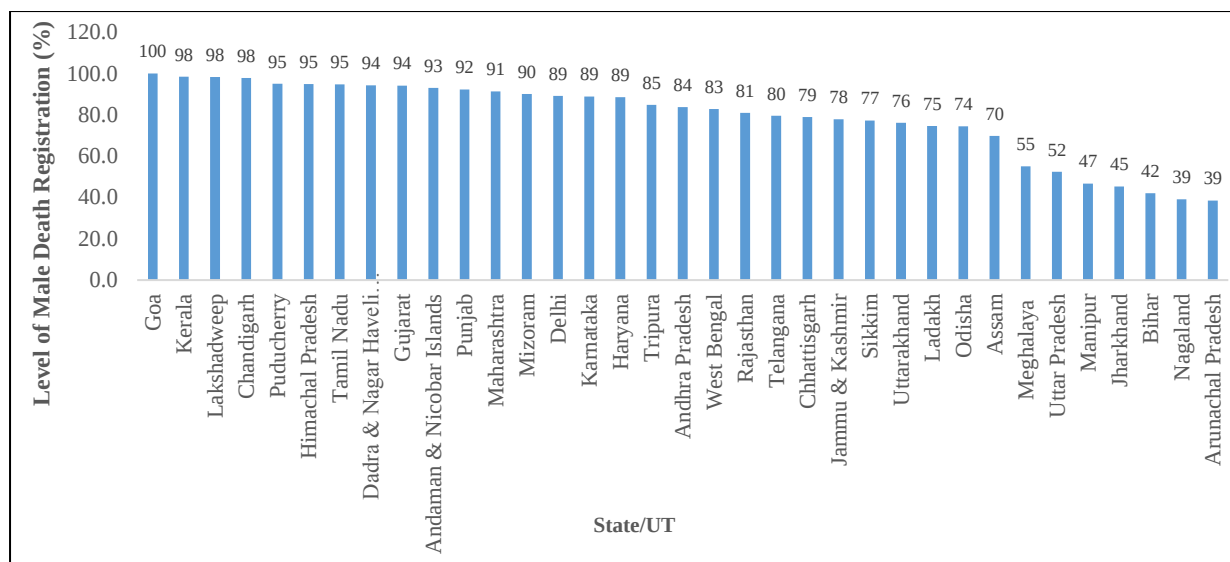
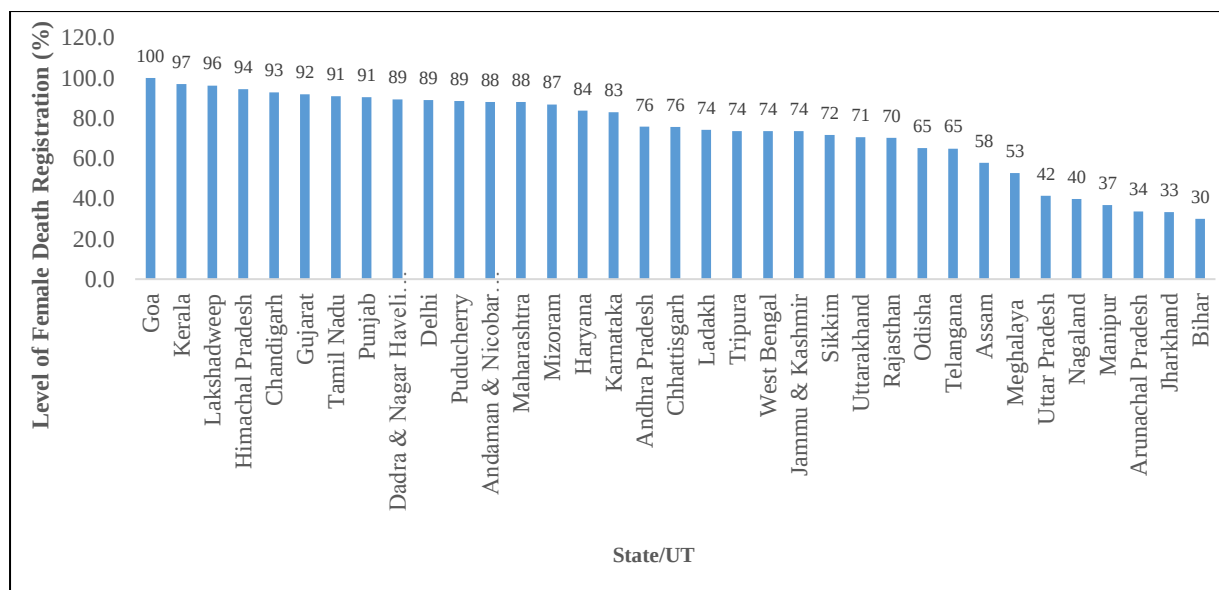


Figure 3 Level of Male Death Registration at different State/UT of India, NFHS-5 (2019-21)

While in Figure 4, female death registration level is highest in Goa (100%), followed by Kerala (96.96%), Gujarat (91.88%), Tamil Nadu (90.89%), and female death registration level is lowest in Bihar (29.96%), Jharkhand (33.32%), Arunachal Pradesh (33.70%), Manipur (36.85%), Nagaland (39.81%). There are five states, namely Punjab (90.5%), Maharashtra (88.0%), Mizoram (86.8%), Haryana (83.7%) and Karnataka (83.0%) where female death registration level is between 90-80%. Level of female death registration in between 70-50% in eleven states namely, Andhra Pradesh (75.8%), Chhattisgarh (75.7%), Tripura (73.6%), West Bengal (73.6%), Sikkim (71.6%), Uttarakhand (70.6%), Rajasthan (70.3%), Odisha (65.1%), Telangana (64.9%), Assam (57.9%) and Meghalaya (52.7%). There are six states, namely Uttar Pradesh (41.5%), Nagaland (39.8%), Manipur (36.9%), Arunachal Pradesh (33.7%), Jharkhand (33.3%) and Bihar (30.0%) where female death registration level is lower than 50% of the total registered female deaths, and only one state where female death registration is 100% (Goa). Among Union Territories, female death registration level is highest in Lakshadweep (96.2%) and lowest in Jammu & Kashmir (73.6%).

Figure 4 Level of Female Death Registration at different State/UT of India, NFHS-5 (2019-21)



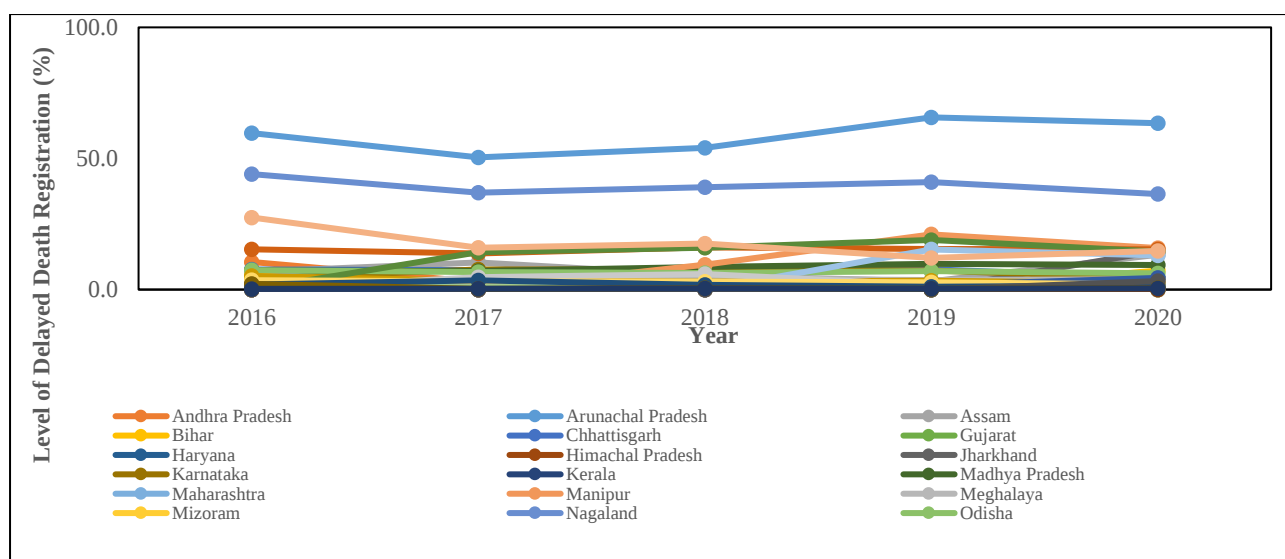
Source: National Family Health Survey (NFHS-5), 2019-21: India Report.

The gender gap in death registration is maximum in Telangana (14.64%), followed by Bihar (12.11%), Jharkhand (11.97%), Assam (11.84%), Tripura (11.33%), Uttar Pradesh (10.85%), Rajasthan (10.69%), and Manipur (9.84%). The lowest gap is found in Goa (0%), Himachal Pradesh (0.49%), Kerala (1.42%), Punjab (1.80%), and Gujarat (2.35%). Interestingly, there is one state where female death registration is higher than male death registration, which is Nagaland (-0.70%).

Delayed Death Registration in India

Delayed registration refers to the failure to register an event within the prescribed time limit. According to the CRS rules, an event (both birth and death) should be registered within 21 days from its occurrence (ORGI, 2022). However, many events are registered after this period, sometimes even after years. Delayed registration affects the timeliness and reliability of data and statistics. It also creates difficulties for individuals to obtain certificates and access various services and benefits. According to the CRS 2020 report, Arunachal Pradesh, Assam, Ladakh, Manipur, Nagaland, Jammu and Kashmir, Uttarakhand, and Uttar Pradesh report less than 50% of death registration within the time of 21 days, i.e., the rest of the registered deaths were delayed registration (ORGI, 2022). Figure 5 shows the five-year trend in delayed death registration from 2016 to 2020 in different Indian states and union territories based on previous years' CRS reports. It is clearly visible from the five-year trend analysis that delayed registration is generally low, except in the case of Arunachal Pradesh and Nagaland. In case of these two states, delayed death registration remains high constantly over the years. Delayed death registration was within 30% for remaining of the states in the period from 2016 to 2020. However, data are not accessible for some states, which could affect the accuracy of yearly mortality measures given by the CRS.

Figure 5 Five Year Trend of Delayed Death Registration Level (%) (2016-2020) in Indian States/Union Territories



2.4 Problem in the Published Data and Report

While reiterating the tremendous advancements made in the completeness of death registration in the Indian CRS, our analysis also brought to light important discrepancies between the States within the CRS and the inadequate accuracy of age and sex reporting for deaths in India.

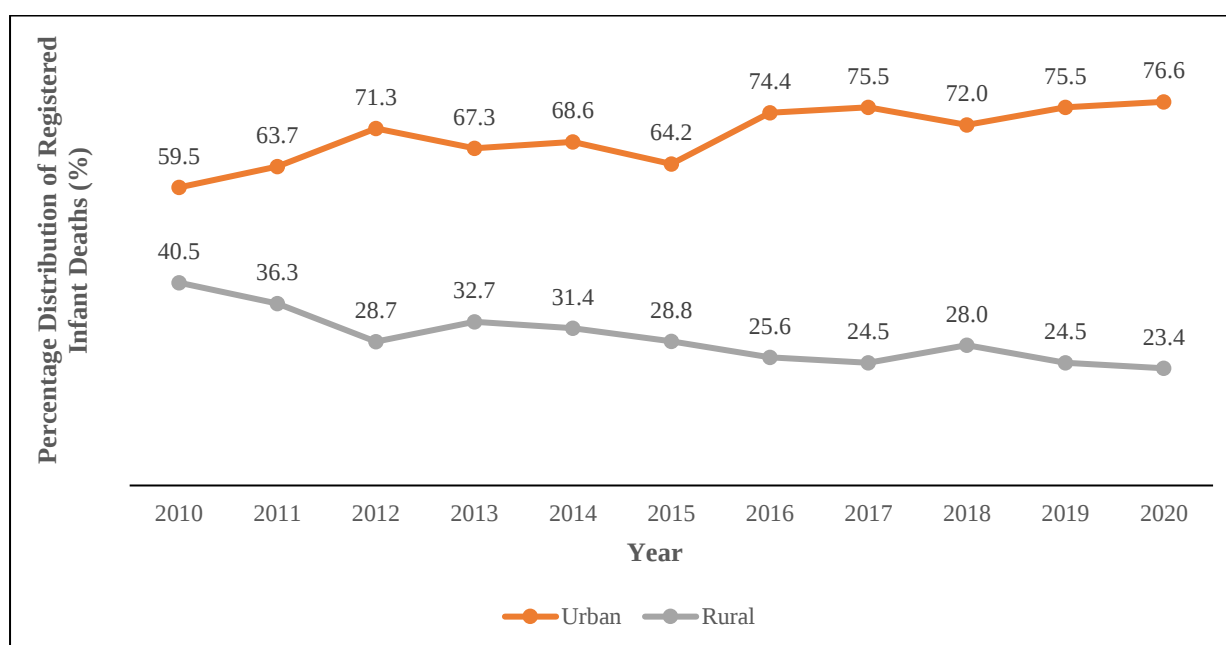
Overall, between 2011 and 2019, the CRS observed a 25.7% increase in CoRD (Completeness of Registration of Death). In 2019, the CRS recorded 92.0% completeness for India, with completeness varying from about 50% in some States to almost 100% in others. The CRS report generally documented significant disparities in the level of reporting by the administrative units. At the national level, 96.0% of the registration units reported monthly returns of registered births and deaths to the District Registrar's or Chief Registrar's Office during 2020 (ORGI, 2022). Assam, Chhattisgarh, Goa, Gujarat, Haryana, Karnataka, Kerala, Mizoram, Odisha, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, A & N Islands, Chandigarh, Daman & Diu, Dadra & Nagar Haveli, Delhi, Lakshadweep, and Puducherry are among the 21 States/UTs that have attained 100 percent level of reporting (ORGI, 2022). These broad variations serve as an immediate indicator of the civil registration system's shortcomings and facilitate system review and necessary action to improve registration levels when necessary. The decentralized system of registering important events with numerous levels of administration and each State having a separate administrative structure can reasonably be used to explain some of these data variances (ORGI, 2017, 2022).

Another inadequacy observed in CRS report is related to reliable as well as timely inspection of registration units (offices) and registration records. In order to improve the registration system both qualitatively and quantitatively, Section 18 of the RBD Act, 1969 stipulates the conditions for inspecting registration offices and records (RBD Act, 1969; ORGI, 2022). A reliable inspection of registration units and records at regular intervals is necessary for an efficient civil registration system.

The office of the Chief Registrar and District Registrars in each State/UT are mandated to conduct the inspections (ORGI, 2022). According to the information provided by the States, the inspection of registration centers was sporadic and incredibly insufficient in the majority of States/UTs during 2020 as well (ORGI, 2022). Such inspections may have been more valuable had they been planned and carried out frequently within a regular time frame. Most States and UTs do not actually report how many units were inspected; however, in 2020, only 20 States and UTs did so, and no inspections of registration units were conducted in the following States/UTs: Assam, Meghalaya, Tamil Nadu, Telangana, Jammu & Kashmir, and Lakshadweep (ORGI, 2022).

According to CRS Report 2020, the percentage share of registered infant deaths of rural area is 23.4% while that of urban area is 76.6% during 2020 (ORGI, 2022). The data suggests a larger number of infants dies in urban areas, but the number of rural areas is comparatively very small. It is clearly visible that there is a wide variation between the rural-urban distribution of registered infant deaths. The smaller number of infant deaths in rural areas could be due to non-registration of infant deaths. Non-registration of infant deaths in rural area is a cause of concern which may be due to non-reporting of infant deaths to the Registrars especially in case of domiciliary events (ORGI, 2022). This variation has not only been noted in the CRS Report for 2020, but it has also persisted throughout the past decade. Figure 6 shows ten-year trend analysis of percentage distribution of registered infant deaths by place of occurrence.

Figure 6 Ten-Year Trend Analysis of Percentage Distribution of Registered Infant Deaths by Place of Occurrence, 2010-2020



Source: Report on Vital Statistics of India based on Civil Registration System, 2010-2020

The above figure illustrates that percentage share of infant deaths of rural areas is decreasing day by day and the rural-urban difference is widening more and more. It seems that authorities don't act based on previous civil registration reports and tune up the administration.

From CRS reports, we can only learn about an event's place of occurrence (rural or urban) within a year. We don't receive information on the deceased's residence or place of death registration from CRS reports. Information on the deceased's residence and place of death registration is crucial to ensure the completeness of the civil registration system. For instance, when someone passes away far from their home, the family may notify a local registrar who is located far from the location where the deceased's medical certification of death is completed. It is particularly crucial in this case for the death registration record and the medical certificate of cause of death to have the same information regarding the decedent's residence and PIN, if they had one, in order to match the two separate records.

The non-availability of age and sex for the deaths registered in the civil registration system from 2010 to 2020 is shown in figure 7 and figure 8 respectively. The proportion of age non-availability was higher than that of sex non-availability across the years. The age non-availability ranged from 42.3% in 2010 to 34.8% in 2020, an average of 39.8% over the ten years and was an average of 35.8% and 36.2% for males and females across the ten years, respectively. Sex non-availability was much lower in the CRS as compared with that for age and showed significant drop in 2012, but an increase again was seen in 2015. But from 2016, there is a decreasing trend in the non-availability of sex of registered deaths.

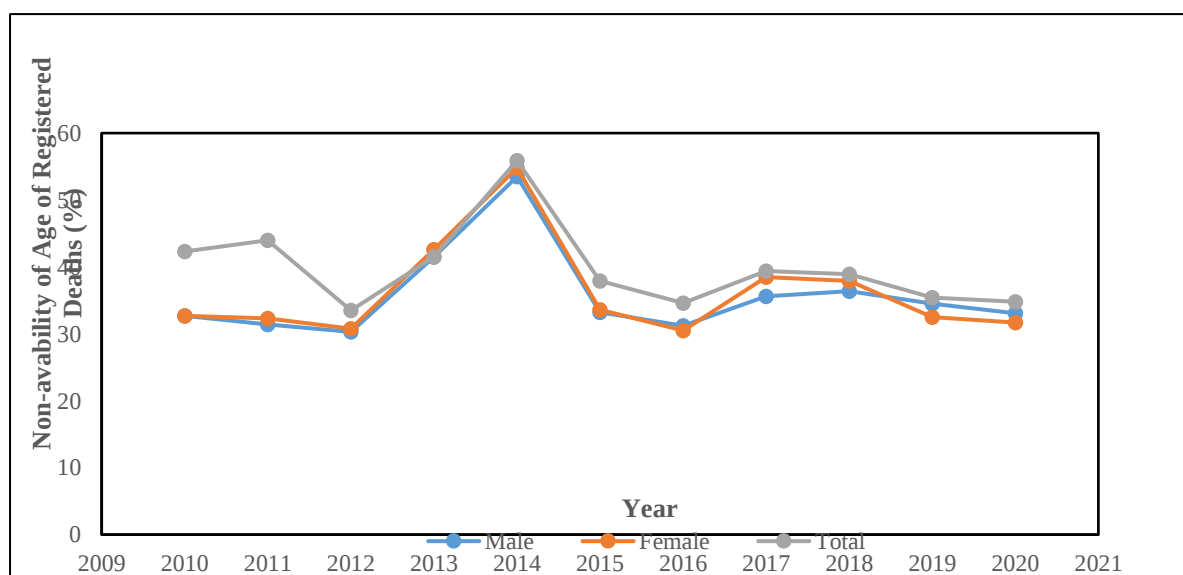
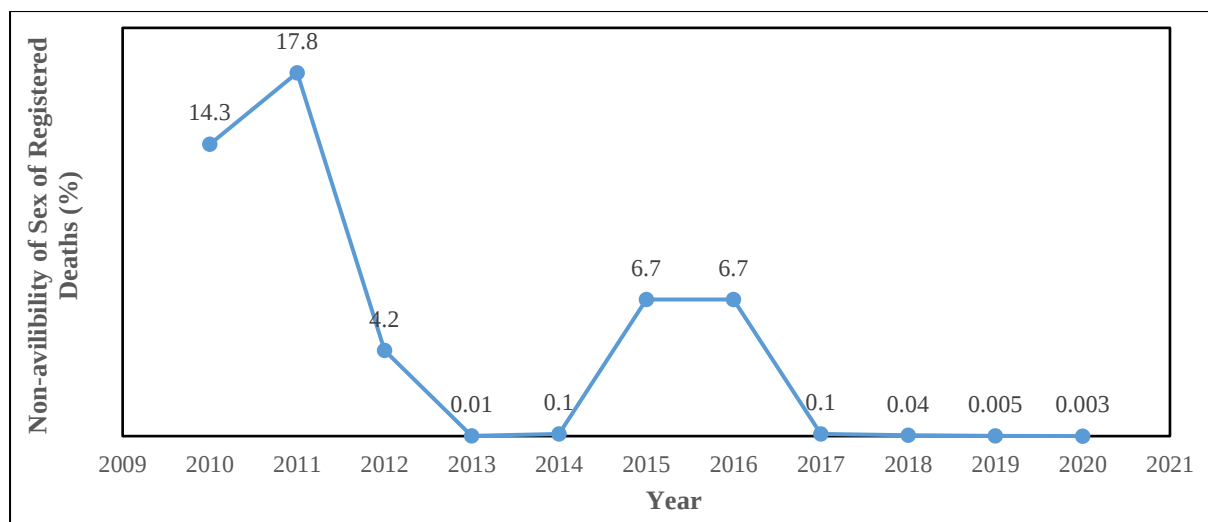


Figure 7 Non-availability of age for the deaths registered in the Civil Registration System in India from 2010 to 2020

Figure 8 Non-availability of sex for the deaths registered in the Civil Registration System in India from 2011 to 2020



Non-availability of the exposed population for calculating mortality rates using Civil Registration System Data

Another aspect to consider regarding the variability of completeness of registration of death (CoRD) estimates is the denominator which is provided by the Sample Registration System (SRS) (Anil Kumar et al., 2019). CoRD in the CRS report is defined as the percentage of registered deaths to the deaths estimated through SRS for a given year as shown in the formula below:

$$\text{CoRD in the CRS} = \frac{\text{No. of registered deaths in CRS in a given year}}{\text{No. of estimated deaths in SRS in a given year}} \times 100$$

This variability in SRS estimates has led to instances where some states have reported a 100 percent CoRD estimation, indicating a higher number of registered deaths in the Civil Registration and Vital Statistics (CRVS) system compared to the number of deaths estimated by the SRS.

The estimated overall deaths in the SRS are derived from a fixed panel sample of a representative population in a specific geographic location over a 10-year period (ORGI, 2022). However, no evaluation of the assessments noted that the SRS captured 90 percent of all vital events. While the SRS bulletins describe the data gathering method, they do not provide information on the extent of missing data, making it challenging to assess the level of completeness. Moreover, the fixed sample areas in the SRS over a 10-year period may introduce biases in comparative worsening of CoRD under the SRS. Consequently, improving the quality of CoRD estimation necessitates enhancing the SRS data on death estimates. Recent evaluations and missing data assessment, pose challenges to accurately estimating the completeness of death registration. Addressing these issues and improving the SRS data on death estimates are crucial steps towards obtaining more reliable and comprehensive CoRD estimates.

Methodological issues in registration of death of migrants/rural people in urban centres in India

When it comes to the registration of deaths of migrants or rural people in urban centres in India, there are several methodological issues that have been identified. Some common challenges that have been observed are given below:

India is a linguistically and culturally diverse country. Migrants who come from different regions may face language barriers while communicating with officials responsible for death registration. Additionally, cultural differences in practices related to death and mourning can impact the way deaths are reported and registered. Migrants or rural individuals who move to urban centres may have limited awareness of the death registration process or the importance of registering deaths. This lack of knowledge can result in underreporting or delayed reporting of deaths. The bureaucratic processes involved in death registration in India can be complex and time-consuming. Migrants may find it challenging to navigate the paperwork, fulfil the required formalities, or access relevant government offices in urban centres. Migration patterns within India often involve circular or seasonal migration, with individuals frequently moving between rural and urban areas. This mobility can pose challenges in accurately tracking and registering deaths, as deaths occurring in urban centres homes. Some urban areas in India may have inadequate infrastructure or limited resources to handle the registration of deaths for many migrants or rural people. Insufficient staffing, delays in processing paperwork, or overcrowded registration centres can contribute to inaccuracies or delays in death registration.

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