International Journal of Humanities & Social Science Studies (IJHSSS)
A Peer-Reviewed Bi-monthly Bi-lingual Research Journal
ISSN: 2349-6959 (Online), ISSN: 2349-6711 (Print)
ISJN: A4372-3142 (Online) ISJN: A4372-3143 (Print)
Volume-IX, Issue-IV, July 2023, Page No.101-107
Published by Scholar Publications, Karimganj, Assam, India, 788711
Website: http://www.ijhsss.com
DOI: 10.29032/ijhsss.v9.i4.2023.101-107

Exploring the XY and Z of Rumors in Small Towns- A case study of Hazaribag district of Jharkhand

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Abstract:
Rumors spread exponentially and show similar patterns as epidemics. Perhaps, it's due to this scholars apply mathematical models of epidemics to look into spread of rumors as well. The first to have used mathematical model were Daley and Kendall, who examined rumor through their XYZ epidemic model. This model has been further modified by numerous scholars and used in academics as well as professional settings. All the mathematical models however assume that the actors in the model behave mechanically. The current study simply tries to categorize different actors of the XYZ model on basis of age, sex and social media usage by conducting a survey on an incident that became viral in Hazaribag district of Jharkhand. This categorization may help in identifying those groups that are prone to spreading rumors, which may further help in initiating long-term media program for assuaging rumors that have the potential of misguiding or disturbing social harmony.
Keywords: Epidemic, Rumor, Ignorant, Spreader, Susceptible, Hibernator, Removed

Introduction: In a groundbreaking application of epidemic model, Daley and Kendall provided an analogy of XYZ used in it to understand (and "not to advance the model *per se*") [1] the spread of rumors as well. According to them the analogy of X which denotes population group susceptible to disease during epidemics is similar to those who have yet not heard or are ignorant of a rumor. Y denotes the infectious people who are similar to those spreading the rumor while Z denotes isolated or immune persons that are comparable to those who have stopped spreading or who do not want to. This model also predicts the threshold required and the speed at which any message becomes viral.

In the 1970s, Maki and Thompson proposed similar and more simplified model [2] while in recent years SIR and SIHR model have become popular in academic circles. In SIR model "S" stands for "Spreaders", while "I" stands for "Ignorant", and "R" stands for "Removed" or those spreaders who stopped spreading the rumor. According to the model, initially, everyone in the population is ignorant about a rumor; once a person finds a

message credible to spread, he/she starts spreading and after crossing a threshold, the message becomes viral. This process continues until the spreader meets another spreader and he/she stops spreading because now he thinks that the message is known to everyone and there is no point in spreading. The SIHR model is an extension of it. Besides other improvisations, this model consists of an extra group called "H" that stands for "Hibernators" or those spreaders who stop spreading due to forgetting mechanism, but start spreading again once they remember the rumor[3].

Over the years several anti-rumor models have also gained grounds and are effectively used for combating rumors in new media. One of the popular anti-rumor models is Beacon model in which administrative authorities place agents who are media savvy and who start the anti-rumor messages once they come to know on it. Another is identifying and promoting publically concerned citizens who can act as stiflers when such rumors are spreading. The present study however, does not venture into the mathematics or modeling of the spread; rather it takes mass media approach in identifying the characters of XYZ model that are involved in spreading rumors so that a long term-media strategy can be initiated to counter it.

The incident: In the year 2021, video of a thin creature walking at night in Hazaribag district of Jharkhand became viral on WhatsApp, Facebook, Instagram, and the national/local news media[4]. Local people thought an alien had come down to Hazaribag and was walking at night. Later the video turned out to be of a very thin lady walking at night on a lonely road. The video was originally shot somewhere else and not in Hazaribag district. Though some residents say they saw this video before 30 May 2021, the video started spreading on this date, and it became very popular between May 31 and June 1, 2021, when the state and also the national level media started carrying this story[5]. During that period local and even nationally acclaimed personalities started forwarding and commenting on this video[6]. The rumor subsided on June 3, when interviews of those who had shot the video came to light[7]. As predicted by the rumor models, in less than 2 days the whole of Hazaribag town was aware of this video, and the frenzy subsided thereafter. The interviews conducted in this study also indicate that on the 3rd day people started losing interest in talking about it because the story became stale and almost everyone knew about it.

Research Questions:

RQ 1: Does the whole population behave likewise in spreading rumors?

RQ 2: Can we categorize the population on basis of proneness in spreading rumors?

Method: The study undertook qualitative and quantitative approach to answer the research questions. The researcher carried out content analysis of the video and also examined various sources through which the video was forwarded. Videos on WhatsApp, Facebook, Instagram and news media both electronic and print, were examined. The researcher also conducted a survey of over one hundred respondents for this purpose. Stratified random sampling was used for selection. Population was divided into different categories based on their age, sex, profession, and individuals were selected randomly from these groups. All

the respondents were from Hazaribag district. The location of the survey was the university, schools, colleges, shops, saloons, vegetable market, etc. Villagers, who come to Hazaribag town to sell vegetables or other daily items, were also interviewed. The questions, besides personal information were:- when and how did they learn about this story, whether they forwarded/liked this video on social media, whether they spoke about this video to their family and friends, would they have forwarded if the video depicted violence, how would they know whether a video/message is fake or real, etc. After the interviews, the answers were coded and analyzed.

Results: If we examine this rumor story through the mathematical models, it fits perfectly with their predictions. Initially there were only ignorant people, then few ignorant persons (or persons interested in forwarding but pretending to be ignorant) came to know about the story and they started spreading the video. Since the video had the potential to attract audience, it reached the threshold and became viral. The speed of rumor became exponential on the second day, it peaked the third day and subsided thereafter. Interviews of the spreaders also revealed that they stopped talking about the video after everyone in their group had known about it.

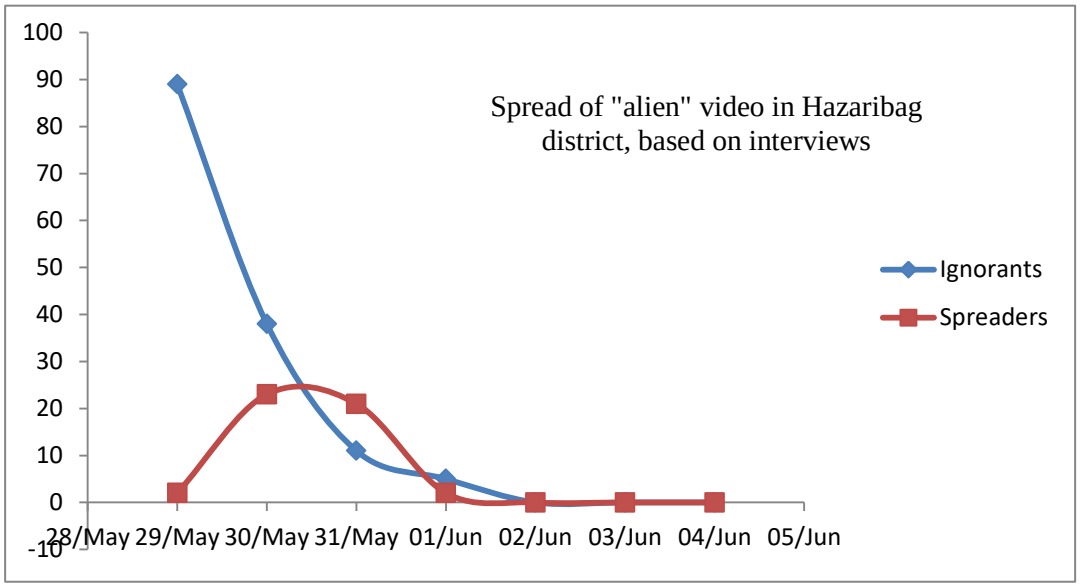

Fig-1

In figure-1, the steep decline in the graph indicates that the ignorant or those who did not know about the rumor started knowing about it, and between May 31, 2021 and June 1, 2021, almost everyone knew about it. Some residents in Hazaribag say this video started circulating earlier, but based on memory of the respondents, 89 percent of them were ignorant on May 29 and came to know about it on May 30 or May 31. Among the total respondents 23 percent of them said that they forwarded this video on May 30, while about 21 percent of them said they forwarded this video on the next day, the moment they saw it. Rest did not forward it because of aforesaid reasons, but they did speak to their family

members or friends who mostly knew about it. On May 31 several news channels and newspapers also carried this story which contributed in spreading this rumor. The rumor reached its peak on May 31 and remained at its peak on June 1 and June 2, after which it started subsiding. On June 1, there were only 2 individual spreaders among those interviewed, while most of the spreading on June 1 and 2 was done by news media and publically known personalities. The truth of the rumor had come out earlier but became publically known on June 3, after which the rumor subsided completely.

Interviews of the respondents clearly indicate that people do not behave coherently when it comes to forwarding any news or message on social media. Some respondents had no enthusiasm in forwarding alien video to others because they were too caught up with their own business or family work. Some of the respondents found it unethical to forward videos that are not verified, some of them enthusiastically forwarded this video to over one thousand friends, while some of them did not know how to use android phones but they spoke about it to their friends. The answer to RQ1 is that people behave differently when it comes to spreading rumor or unverified news/messages.

To answer RQ2, respondents were grouped on the basis of age, occupation and sex. As figure-2 indicates, the video was mostly forwarded by those between the age group of 16-25.

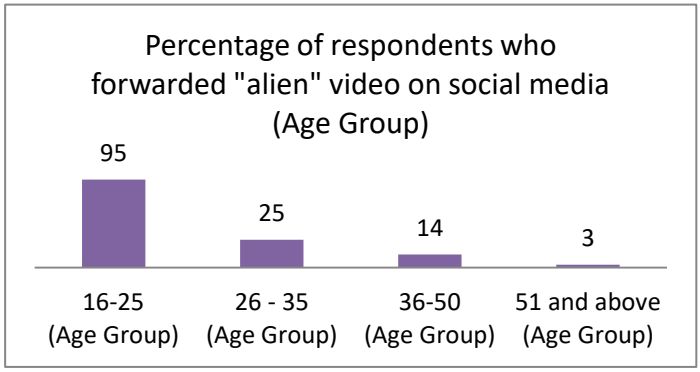

Fig-2

About 95% of the respondents who were interviewed in this age group said they liked/forwarded this message on Facebook or WhatsApp. When the researcher asked whether they would have shared the video if it depicted violence, about 80% said yes they would have shared because they want their friends to know about the message and be safe.

The age group of 26-35, mostly those above 30 years of age seemed more mature in forwarding such videos. In this age group those doing PhDs or working in Malls as seniors executives were against forwarding any video without verification, many of them in fact were sure that the video was fake. The young girls working in malls who were 26-27 years did like this video in Facebook or forwarded it on WhatsApp to those living in other towns as well. The vegetable vendors/hawkers who were in this age group did not forward it but they spoke to their friends about it.

Those in the age group of 36-50 were mostly lecturers in university, fruit sellers, or shopkeepers. Only few of them shared the video with other groups. Most of them found it unethical to spread messages that are not verified. The age group of 51 years and above was least interested in forwarding this message. One of the reasons for not forwarding was their lack of interest in spreading such messages and another reason was their lack of expertise in android phones and their applications. They however did talk about this video with their family members and friends.

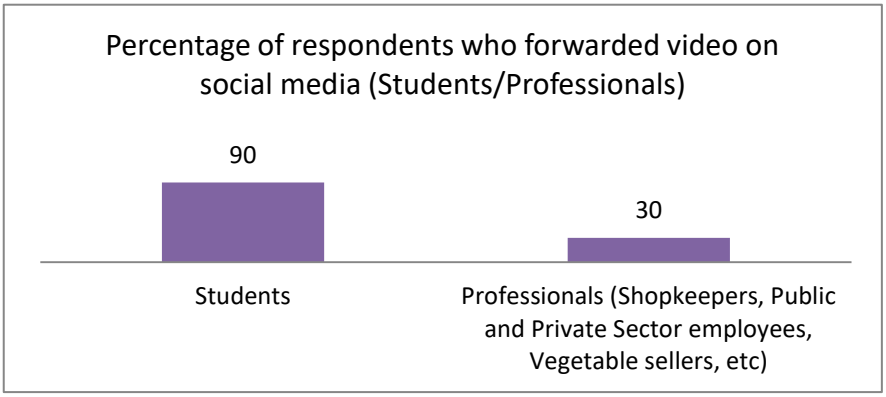

Fig-3

The study also indicated that most of the respondents who forwarded the video were students, either school or college going. Among the professionals working in private companies, or shops, or saloons, the younger age group (below the age of 30) was more interested in forwarding this video compared to older and experienced professionals. Those coming from villages who were involved in selling vegetables or other daily skilled/unskilled work did not forward the message at all, but they spoke to their family and friends about it. Many students said they forwarded it to at least ten groups and also liked it on Facebook. None of them however used Twitter or Instagram or their blogs for this video. These students also shared the video to friends living in other parts of Jharkhand and even to those living in Delhi and other parts of India.

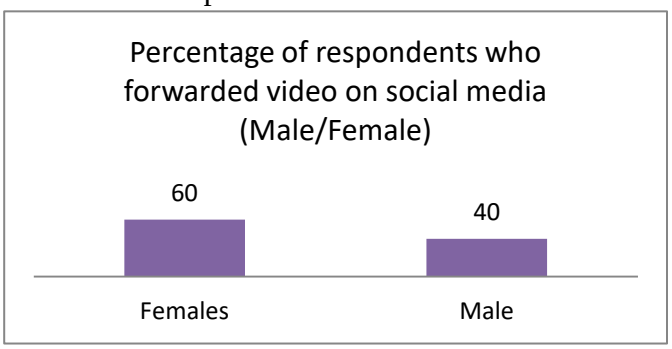

Fig-4

Within the total respondents who forwarded the video on social media, about 60 percent of them were females while 40 percent of them were males. Some of the girls and

boys admitted that they forwarded it because they wanted their friends to know how aware and updated they are, and to create a good impression among their friends. They did not know that they were spreading a rumor. Within females, those who were students or fresh employees at saloons or malls forwarded this video more compared to those who were older or senior to them.

Discussion: The study revealed that not everyone in a small town like Hazaribag is keen in forwarding viral videos on social media platforms or in spreading rumors. There are a variety of reasons for this; one of them being interest in such videos, other being the state of mind and their pre-occupied work during that period, while another one being not able to use phone applications. The younger age group was more prone to spreading such videos and messages to their friends and acquaintances than the older group, which answers the second research question that we can categorize the groups based on proneness in spreading rumors. There was one common behavior however found among all respondents - almost all the respondents agreed that they spoke about this video to their family members and friends. Even those who may be called stiflers who found rumors to be bad for the society, spoke about it to their friends and family members. In a nutshell, everyone behaved similarly when it came to spreading through word of mouth but only the younger generation showed eagerness in forwarding this video on social media platforms which made it viral.

The younger age group was keen in forwarding the video without even knowing that they were spreading rumor. Almost all of them admitted that they wanted their friends to know that they are the first to inform about the interesting message and make a good impression among friends. When the researcher asked the respondents how they will decipher whether videos or text messages are fake or real; to this they could not give any satisfactory answer. Even though media studies have been introduced in schools and college, they mostly focus on the technical aspects of it, and not on how to verify the authenticity of any message. The respondents did not care whether name of the newspaper/TV channel or the person who has shot or produced the video is clearly written on it or not, whether the date of the message is mentioned, whether the audio matches the video, and lastly how to apply their own knowledge on the subject to verify the authenticity of any message.

The study also showed loopholes in the reports of news media. Barring few, all the national and local television channels and newspapers reported this story by creating more mysteries around it. They did not do ground reporting to verify the video. In a way they too were spreaders of this rumor. The local and national level personalities too participated in spreading the rumor by commenting on it without verifying it. Perhaps, restraining from broadcasting and commenting on such unverified messages will reduce incidence of misguidance among people of small towns and villages.

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