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Analysing the Opinions of People about the Death of Sidhu Moose Wala through Twitter Data Analysis

Manoj Kumar Verma
Aasif Ahmad Mir
Syed Inabia Bukhari
Shafqat Jan Bhat
Syed Asra Nisar
Nasreena Rashid Mir

Abstract

Purpose: *Twitter is one of the most popular micro-blogging sites worldwide, with millions sharing their thoughts, opinions, and sentiments on various topics. The death of Sidhu Moose Wala, a prominent figure in India, sparked significant discussions on social media, particularly Twitter, to express their condolences, share memories, and discuss the impact of his music and persona. The study analyses the trend, geographical contribution, and opinions of the Twitter-sphere surrounding his demise.*

Methodology: *Two hashtags, "#SidhuMooseWalaDeath and #SidhuMosseWala" were used as input terms to download the tweets. The Tweet Archiver was used to retrieve the tweets against selected hashtags. The data was retrieved for 40 days, from 05-06-2022 to 14-07-2022. A total of 5247 tweets with accompanying metadata were retrieved during the specified time frame. The location of the tweeter users was ascertained to discover the geographical distribution of tweets. Moreover, to categorize and interpret the content of tweets, the naturalistic approach was used, in which the content of each tweet was read and understood thoroughly so that the opinions related to the demise of a famous singer (Sidhu Moose Wala) could be framed.*

Findings: *The study uncovers the daily trend of tweets and found that the majority of tweets were posted on some specific days, like on the birthday of Sidhu Moose Wala and the day on which YouTube removed a new song of deceased Sidhu Moose Wala titled SYL- named on the under-construction Sutlej-Yamuna Link (SYL). As for the geographical contribution of tweets, it is found that the conversation surrounding the death of Sidhu Moose Wala extends beyond borders, with the significant contribution of Tweets from India followed by Pakistan, Canada, the UK, and the USA, respectively. The content analysis of the tweets highlights that people have varied opinions regarding the death of Sidhu Moose Wala, with a majority of tweets sharing News, followed closely by the ones that express sympathy for the deceased. Moreover, Twitter users have used different terms in their tweets to share their thoughts regarding Sidhu Moose Wala's death. The study found that the term "Sidhumoosewala" followed by "Sidhu", "legend", "Sidhumoosewaladeath", and "Justiceforsidhumoosewala" are the most frequently occurring terms.*

Originality: *The study is the first of its kind, which offers a comprehensive understanding of the Twitter sphere's response to the death of Sidhu Moose Wala. The study showcases the multifaceted nature of opinions expressed on Twitter*

surrounding the death of Sidhu Moose Wala, highlighting the diverse sentiments and perspectives that emerge within this virtual space.
Keywords: *Sidhu Moose Wala; Twitter data analysis; Opinion mining; Content analysis*

Introduction

Social media has become an essential platform for interactive communication and information sharing, and it plays a vital role in modern society. Its global reach and significant influence have become a fundamental part of our daily lives. People freely express their thoughts, emotions, and viewpoints on a wide range of topics, making social media a powerful tool for shaping public opinion, as highlighted by Oztuk and Avyaz **(2018, as cited in Bashir et al., 2021).** Social media platforms such as Twitter, Instagram, YouTube, Facebook, Friendster, Wikipedia, Telegram, and blogging websites offer diverse avenues for public expression. These platforms serve as valuable sources of public opinion, providing insights into the discussions and interests of the general population. Researchers have also found social media data useful in studying public sentiment, as **Lal et al. (2020)** noted.

Micro-blogging websites, in particular, have played an active role in bringing attention to social issues, political developments, and the impact of natural disasters. They allow users to observe and engage with ideological differences surrounding specific events. Twitter, in particular, has proven to be an effective medium for disseminating and understanding global perspectives. Twitter users have engaged in interactive discussions during various international events, providing an opportunity to analyse ideological disparities through online behaviour and conversations, as highlighted by **Goh and Lee (2011), Gul et al. (2016), Humphreys et al. (2013), Kalsnes et al. (2014), Lee and Goh (2013), Lorentzen (2014), Small (2011), and Vidal et al. (2015).** Social media platforms, including Twitter, offer a public setting where individuals can freely participate in group discussions and constructive debates on philosophical ideals **(Lin et al., 2014).**

In recent years, Twitter has gained significant attention from researchers who utilize its data for various purposes. This includes making predictions, gauging user attitudes, recognizing user emotions, and detecting sarcasm, as affirmed by **Giachanou and Crestani (2016).** With millions of active users worldwide, Twitter has emerged as one of the most popular micro-blogging sites, allowing individuals to share their thoughts, opinions, and sentiments on a multitude of topics. Its prominence presents a valuable opportunity for researchers and analysts to mine opinions and sentiments, gaining valuable insights into public perceptions and trends.

The recent death of Sidhu Moose Wala, a prominent figure in India, has

ignited extensive discussions and conversations on social media, particularly Twitter. As news of his death spread, people took to twitter to express their condolences, share memories, News and discuss the impact of his music and persona. This presents an opportunity for researchers to analyse the trends, geographical contributions, and opinions within the Twitter sphere surrounding his demise.

Literature Review

Extensive research has been conducted to explore the potential of Twitter in monitoring public activities, sentiments, opinions, and concerns regarding different events. **Goh and Lee (2013)** examined tweets published after the death of "King of Pop" Michael Jackson. The study identified two types of tweets. The first thing they discovered was tweets about social support. Second, they found that a large portion of tweets were being used for purposes other than social support, such as spreading rumours, spamming, marketing, and advertising. **Rajan and Sarkar (2018)** investigated tweets following the death of Indian actor Om Puri, demonstrating how people expressed their feelings and paid homage to him. **Kovac et al. (2021)** analysed tweets after the murder of journalist Jan Kuciak, revealing public condemnation of the murder and concerns about press freedom and security. **Korbova and Zachari (2021)** conducted a network analysis of tweets following the murder of George Floyd, identifying influential users shaping the discourse. **Ruback and Oliviera (2018)** investigated the Brazilian public perception of the murder of Marielle Franco, highlighting mostly positive tweets but also a few days with a higher number of negative tweets.

Sobaci and Karkin (2013) delved into the use of Twitter by Turkish mayors, revealing that they primarily used the platform to share information, send personal messages, and update followers about their activities. **Murthy and Longwell (2013)** compared the role of Twitter and traditional media during the 2010 Pakistan floods, highlighting that Western users preferred linking to traditional media while Pakistani users perceived social media as more legitimate during disasters. **Gul et al. (2018)** explored Twitter sentiments regarding floods in Jammu and Kashmir, finding that people expressed themselves in various ways, with informational tweets being the most popular during disasters. **Wang et al. (2012)** proposed a real-time sentiment analysis system for political tweets during the 2012 U.S. presidential election, achieving 59% accuracy in four-category classification (positive, negative, neutral, and unsure) using a Naive Bayes model with unigram features. **Bakliwal et al. (2013)** analysed tweets related to the 2011 Irish general election and achieved the highest accuracy of 61.6% in classifying tweets as positive, negative, or neutral towards political parties or leaders. **Tremayne (2014)** conducted a network

analysis of the Occupy Wall Street movement, identifying influential users, posts, and hashtags shaping the discourse. **Lader et al. (2019)** examined tweets related to the Syrian refugee crisis, finding a predominance of negative sentiment among active Twitter users. **Lal et al. (2020)** focused on crime-related tweets and successfully classified them using various classifiers, with a Random Forest classifier achieving the best accuracy of 98.1 per cent. **Neogi et al. (2021)** analysed tweets about the Indian farmers' protest, finding that the majority were neutral, followed by positive and negative sentiments. Similarly, **Peng et al. (2022)** conducted a sentiment analysis of the Black Lives Matter movement on Twitter, revealing frequently used words associated with activism, racism, police, deaths, and political figures, with corresponding positive or negative sentiments.

Objectives

- To visualize the daily trends of tweets related to the death of Sidhu Moose Wala.
- To ascertain the Geographical distribution of tweets on Sidhu Moose Wala's death.
- To explore the opinions (using a naturalistic approach) of the public towards the death of Sidhu Moose Wala by examining the relevant tweets.
- To discover the most frequently used words by people in their tweets to express the death of Sidhu Moose Wala.

Methodology

The methodology adopted for the completion of the study is divided into IV phases.

Phase I: Hashtag selection for tweet delimitation:

The two hashtags "#SidhuMooseWalaDeath and #SidhuMosseWala" were used as input terms to download the tweets.

Phase II: Retrieval of tweets: The Tweet archiver (an extension available for Google spreadsheets used for saving tweets) was used to retrieve the tweets against selected hashtags. The app runs in the background and auto-downloads the tweets matching the query.

The search query employed in Tweet archiver to retrieve the tweets was:

These hashtags: #SidhuMooseWalaDeath OR #SidhuMosseWala Written in: English

Exclude: retweets Exclude; replies

The search query was created on 05 June 2022 and was closed after 40 days, i.e., on 14 July 2022. A total of 5247 tweets with accompanying metadata were retrieved during the selected time frame.

Phase III: Location Identification

A total of 5247 tweets were harvested pertinent to selected hashtags. The phase involved determining the precise location of Twitter users to enable data categorization based on their respective countries. During this process, it was observed that many users mentioned only the names of cities or specific areas without explicitly stating their countries. To address this, each city name was individually researched on the Internet to identify the corresponding country, allowing for proper tagging and classification. However, it is important to note that certain Twitter users did not provide adequate information about their specific countries. Consequently, these tweets were grouped together under the "Unknown" category, as their geographical origin could not be ascertained with certainty. Once the entire dataset was organized based on the user's respective countries, the tweets were classified geographically, facilitating a comprehensive analysis and understanding of the global distribution of tweets regarding the event. The studies carried out by **Mir et al. (2023a, 2022b), Bashir et al. (2021)** were found to be instrumental in this arena.

Phase IV: Tweet Opinion categorization

The naturalistic approach (interpreting meaning from the content of data) was used to interpret and code the content of tweets. The content of each tweet was read and understood thoroughly so that the sentiment categories related to the death of a popular singer (Sidhu Moose Wala) could be framed. The process was repeated to ensure that the established categories were the most appropriate. As a result, the Opinions expressed in the tweets were classified into 11 broader categories **(Table 1**).

Table 1: Categories of Tweets by People's Opinions expressed in Tweets

Category	Definition	Examples
Sharing News/ Information/ Status update	Sharing news stories, information, update and other content related to the death of Sidhu Moose Wala.	Sidhu Moose Wala Killing: Delhi Police Identifies 6 Out Of 8 Shooters. . #NewsAlert #ViralNews #SidhuMooseWalaDeath #SidhuMosseWala #DelhiPolice #SaturdayThoughts
Providing Personal Commentaries	Providing suggestions or personal opinions about Sidhu related issues.	Everybody should wait for the official release. I am sure his family don't bother about revenue they can get from #sidhumoosewala's new songs but they must wants to release their son's last work on the big scale the way probably sidhu himself wanted to do. #SidhuMooseWalaDeath

Category	Definition	Examples
Sympathy	Expressing sympathy towards the victim and his family	Legends never die Still in our hearts will remain forever #JusticeForSidhuMooseWala #SidhuMooseWalaDeath #sidhumoosewalaforever #LegendsNeverDie
Demanding Justice	Posts related to administration of law or equity.	Justice for Sidhu moosewala #SidhuMosseWala #bhagwant_mann #sidhumoosewala
Anger towards Sidhu Moose Wala	Criticizing Sidhu and/or anyone associated with him.	stop calling legend to #SidhuMosseWala
Anger towards Government	Criticizing govt and its policies	Shame on you Punjab sarkar. Even after 15 days a single terrorist is not captured by you. Bebe bapu ne apna sb kujh gva Dita oye laanta thode te. #shameonyoupunjabsarkar #SidhuMosseWala #Aapsarkarfailure @BhagwantMann @ArvindKejriwal @AmitShah @narendramodi
Asking Questions	Seeking information by querying others on issues related to Sidhu's death.	What's the reason behind Sidhu Moosewala's murder? If it's Lawrence then how he mastermind the killing from jail? Why Sidhu was targeted by the gangsters? There's many more questions.. but we're still assuming! #SidhuMooseWalaDeath #LawrenceBishnoi
Offering Tribute	Praising Sidhu's work and pointing out his influence on the other people, or the music industry.	To honour the legend on his birthday, I designed some album arts. Happy Birthday #SidhuMosseWala
Expressing Grief	Expressing sorrow, and/or emotional distress brought on by sidhu's death.	Man was a legend Still tear comes up in my eyes remembering him 💔💔💔#SidhuMosseWala

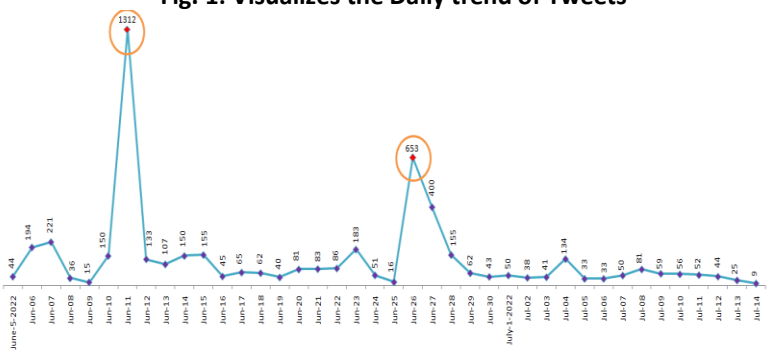
Category	Definition	Examples
Expressing Shock	Demonstrating surprise or shock among people.	Just for a minute, I thought it was uploaded by veera himself,MY POOR HEART💔IDK why,it's still so hard to believe the reality💔 REST IN POWER VEERE❤ Hamesha toh thde he fan sege, te thdi he fan rahu ge✊ LOVE YOU♾ #JusticeForSidhuMooseWala #SidhuMosseWala #DeportGoldyBrar
Irrelevant	Includes posts that are not related to the event	Bangladesh's second seaport ghat, a captivating view via @YouTube #RanbirKapoor #RubinaDilaik #NupurSharma #BabarAzam #SidhuMosseWala #Prabhas

Data Analysis and Interpretation

Daily Trend of Tweets

Fig. 1 shows the daily traffic of tweets for the selected time frame (June 5, 2022, to July 14, 2022). The highest number of tweets were posted on June 11 (1312) and June 26 (653) during the select time frames. June 11 is the birthday of Sidhu Moose Wala, and on this day, people expressed their condolences, shared memories, and discussed the impact of his music and persona. On June 26, YouTube removed a new song of deceased Sidhu Moosewala titled SYL- named after the under-construction Sutlej-Yamuna Link (SYL) canal- from its platform in India, citing a "legal complaint from the government" **(The Indian Express, 2022).**

Fig. 1: Visualizes the Daily trend of Tweets



Geographical Distribution of Tweets

The geographical location of a large number of tweets (1995; 32.08%) was not revealed by Twitter users, thus limiting the geographical analysis to 3252 tweets, totalling 61.97%. The tweets were posted from 37 countries

across the globe, with a significant contribution from India (2431; 46.33%) followed by Pakistan (359; 6.84%), Canada (126; 2.40%), England (95; 1.81%) and, USA (91; 1.73%) respectively. However, the UAE, UK, Australia, Nigeria, and Spain posted tweets in the range of 10-30. The remaining countries have posted a relatively small number of tweets, each comprising less than 10. These countries include New Zealand, Malaysia, France, Germany, Bangladesh, China, Italy, Saudi Arabia, Singapore, Belgium, Brazil, Fiji, Finland, Georgia, Greece, Ireland, Kuwait, Nepal, the Netherlands, Oman, Qatar, Sweden, Switzerland, Thailand, Ukraine, and Vietnam **(Table 2).**

Table 2: Geographical Distribution of Tweets

Country	Tweet Count	Country	Tweet Count
India	2431 (46.33)	Singapore	2 (0.03)
Unknown	1995 (38.02)	Belgium	1 (0.01)
Pakistan	359 (6.84)	Brazil	1 (0.01)
Canada	126 (2.4)	Fiji	1 (0.01)
England	95 (1.81)	Finland	1 (0.01)
USA	91 (1.73)	Georgia	1 (0.01)
UAE	29 (0.55)	Greece	1 (0.01)
UK	25 (0.47)	Ireland	1 (0.01)
Australia	20 (0.38)	Kuwait	1 (0.01)
Nigeria	18 (0.34)	Nepal	1 (0.01)
Spain	14 (0.26)	Netherland	1 (0.01)
New Zealand	7 (0.13)	Oman	1 (0.01)
Malaysia	4 (0.07)	Qatar	1 (0.01)
France	3 (0.05)	Sweden	1 (0.01)
Germany	3 (0.05)	Switzerland	1 (0.01)
Bangladesh	2 (0.03)	Thailand	1 (0.01)
China	2 (0.03)	Ukraine	1 (0.01)
Italy	2 (0.03)	Vietnam	1 (0.01)
Saudi Arabia	2 (0.03)	**Total**	**5247**

Figures in parentheses indicate the percentage

Nature of Tweet Expression

The nature of the tweets shows that people express various opinions about the death of Sidhu Moose Wala. A large proportion of tweets (1314; 25.04%) belong to the "sharing news" category of tweets. These tweets focus on disseminating news, updates, or general information to a broader audience. Users who share such tweets aim to keep others informed about the death of Sidhu Moose Wala. The sharing news category of Tweets is

closely followed by tweets which express "Sympathy" (1307; 24.90%) towards the victim, indicating a widespread concern and empathy towards Sidhu Moose Wala's death. The tweet "Providing Personal Commentaries" ranks third with (714; 13.60%) tweets. The tweets that make statements or raise awareness about other issues and are unrelated to the event deemed irrelevant rank fifth with (603; 11.49%) tweets. However, a good number of tweets expressing grief (335; 6.38%), demanding justice (314; 5.98%), Anger towards the Government (287; 5.46%), Asking Questions (195; 3.71%) and Offering Tribute (124; 2.36%) respectively. While a small score (33; 0.62%) of tweets raise Anger towards Sidhu Moose Wala and expressing shock (21; 0.40%) **(Table 3).**

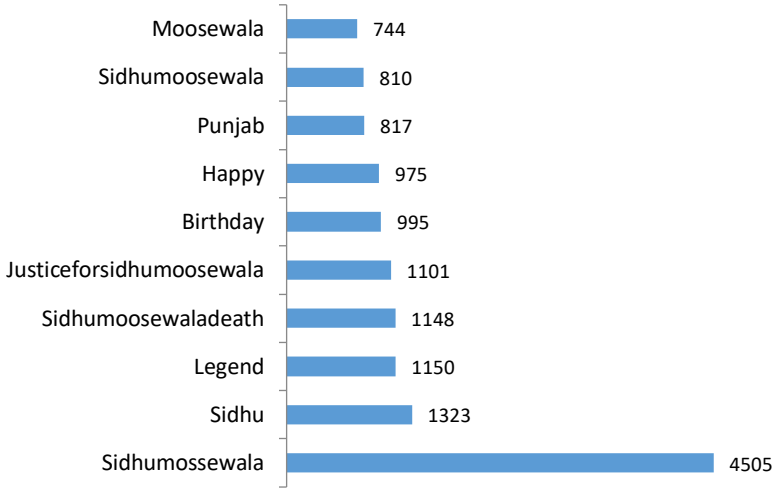
Table 3: Nature of Tweet Expression

Nature of Tweet Expressions	Tweet Count	Percentage
Sharing News	1314	25.04%
Sympathy	1307	24.90%
Providing Personal Commentaries	714	13.60%
Irrelevant	603	11.49%
Expressing Grief	335	6.38%
Demanding Justice	314	5.98%
Anger Towards Government	287	5.46%
Asking Questions	195	3.71%
Offering Tribute	124	2.36%
Anger Towards Siddhu Moose Wala	33	0.62%
Expressing Shock	21	0.40%
Total	**5247**	**99.94%**

Top Ten Frequently Occurring Terms in Tweets

Fig. 2 depicts the most frequently occurring terms people use to share their thoughts regarding the Sidhu Moose Wala death. The term 'Sidhumoosewala' is the leading term, used more than 4500 times, followed by 'sidhu', used more than 1300 times. However, the words 'legend', 'Sidhumoosewaladeath', and 'Justiceforsidhumoosewala' have been used more than 1100 times. The rest of the words like 'Birthday', 'Happy', 'Punjab', 'Sidhumoosewala', 'Moosewala' are used less than 1000 times, respectively.

Fig. 2: Top 10 Frequently Occurring Terms in Tweets



Findings and Discussion

The analysis of online user-generated content (tweets) surrounding the death of Sidhu Moose Wala reveals a significant response from people who expressed condolences, shared news, engaged in discussions, and showcased a range of opinions. The study provides valuable insights into the temporal patterns, geographical distribution, and nature of the tweets, shedding light on the public response and opinions surrounding this event. The trend analysis involved monitoring the volume of tweets mentioning Sidhu Moose Wala's death over a specific period. By examining daily tweet counts, we could identify different spikes in tweets. The highest number of tweets was observed on June 11, which marked Sidhu Moose Wala's birthday. On this day, people expressed condolences, shared memories, and discussed the impact of his music and persona. However, the tweet count gradually declined in the following days until YouTube removed a new song by the deceased artist, titled SYL, due to a legal complaint from the government. This event likely sparked renewed discussion and activity. Geographical contribution refers to the examination of tweet distribution across different locations. By leveraging Twitter's geotagging and location mention features, researchers can analyse how discussions related to Sidhu Moose Wala's death spread across different regions. The analysis revealed tweets originating from 37 countries worldwide, with a significant contribution from India, followed by Pakistan, Canada, England, and the USA. This indicates that fans from around the globe expressed their sorrow and anguish over Sidhu Moose Wala's death. The distribution of tweets

from different countries offers valuable insights into the global reach and diversity of Twitter users' engagement with this event.

Content analysis of the tweets helps extract specific viewpoints, attitudes, and opinions users express. This analysis aids in understanding the prevailing opinions towards Sidhu Moose Wala and his impact, whether it involves appreciation for his music, reflections on his legacy, or discussions surrounding controversies associated with him. The nature of the tweets demonstrates that people expressed a wide range of opinions about Sidhu Moose Wala's death. A significant proportion of tweets focused on sharing news and information about the event, while many expressed sympathy towards the victim, indicating widespread concern and empathy. This aligns with **Goh and Lee's (2011)** findings that informational support constituted the largest percentage of shared tweets.

Moreover, the study found that the most frequently used term in tweets were "Sidhumossewala," highlighting the central role of Sidhu Moose Wala in the event and discussions revolving around him, followed by "Sidhu," his nickname, and "Legend," reflecting his stature and popularity in the music industry.

Overall, analysing tweets surrounding Sidhu Moose Wala's death provides valuable insights into the public response, temporal patterns, geographic distribution, and nature of discussions. It showcases the widespread engagement and diverse perspectives of Twitter users to this event, highlighting the impact and legacy of Sidhu Moose Wala in the music industry.

Conclusion and Future Research

Twitter's prominence as a micro-blogging site and its ability to facilitate rapid information dissemination and public discourse makes it a valuable source for analyzing trends, geographical contributions, and opinions surrounding significant events such as the death of Sidhu Moose Wala. By leveraging techniques such as trend analysis, content analysis, and opinion mining, researchers can comprehensively understand the Twitter sphere's response to this unfortunate incident. The study sheds light on Twitter's unique role in the landscape of grief and mourning. It demonstrates how this particular platform facilitates various forms of bereavement expression, enabling users to establish continuing bonds, engage in public discussions, and find solace through personal and collective interactions. By accommodating online discussions, Twitter offers a dynamic space for mourners to navigate their grief and connect with others, making it a distinctive and valuable platform in the realm of online mourning. As social media continues to evolve, further research is warranted to explore the nuances of grief expression across different platforms. Understanding these dynamics will deepen our comprehension of how individuals cope

with loss in the digital age and provide valuable insights for support services and communities seeking to offer comfort and facilitate healing in the online realm.

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Corresponding author
Manoj Kumar Verma can be contacted at: manojdlis@mzu.edu.in

Author Biographies

Manoj Kumar Verma

Manoj Kumar Verma is a Professor in the Department of Library and Information Science at Mizoram University, Aizawl, India. His areas of interest include Bibliometrics, Scientometrics, Webometrics, Open-Access Publications and Sentiment Analysis. He has published 146 papers in various peer-reviewed national and international journals, eight authored/edited books, 27 book chapters, and 64 conference papers.

Aasif Ahmad Mir

Aasif Ahmad Mir is a Research Scholar in the Department of Library and Information Science, at Pondicherry Central University, Puducherry, India. His research interests include data mining, sentimental analysis and social media. He has published two research articles in Scopus-indexed journals and has presented two papers and one poster at national/international

conferences.

Syed Inabia Bukhari

Syed Inabia Bukhari has completed her Masters in Library & Information Science from the Department of Library and Information Science, University of Kashmir.

Shafqat Jan Bhat

Shafqat Jan Bhat is a Masters in Library & Information Science from the Department of Library and Information Science, University of Kashmir.

Syed Asra Nisar

Syed Asra Nisar has completed her Masters in Library & Information Science from the Department of Library and Information Science, University of Kashmir.

Nasreena Rasheed Mir

Nasreena Rasheed Mir holds a Masters in Library & Information Science from the Department of Library and Information Science, University of Kashmir.