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ANALYZING HYBRID WARFARE STRATEGIES ON THE TWITTERSPHERE IN THE CONTEXT OF PAKISTAN

Taj Muhammad*[1], Dr. Zubair Shafiq Jatoi[2]

*[1]PhD Scholar, Islamia University of Bahawalpur;
[2]Assistant Professor, Islamia University of Bahawalpur

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ABSTRACT

Nowadays, millions of people share their views on social networking sites, and a large amount of data is generated daily, especially on Twitter. Pakistan's geographical position and geopolitical importance have made it vulnerable to various hybrid threats. Pakistan's enemies, mainly India, have launched a series of hybrid wars using digital media platforms and have polarized the society, hence creating an environment of instability and insecurity. This research paper examines the role of Twitter in facilitating hybrid warfare strategies in the context of Pakistan, highlighting how hybrid warfare unfolds on this platform and presents significant threats to Pakistan's national security. This study identifies and analyzes the patterns of disinformation campaigns through sentiment and network analysis of pro-Pakistan and anti-Pakistan hashtags while exploring the factors contributing to disseminating propaganda narratives. The sentiment of the Twitter dataset was initially classified manually by three independent overseers to reduce the biases. Additionally, machine-learning algorithms were developed to categorize and validate the accuracy of the sentiments of the Twitter dataset as pro-Pakistan, anti-Pakistan, and neutral. The researcher also constructed networks to analyze the community's responses to pro-Pakistan and anti-Pakistan hashtags. Furthermore, this research paper utilized a mixed-methods approach that combines quantitative analysis of Twitter data with qualitative information gathered through reflexive thematic analysis of hybrid warfare experts' interviews.

Keywords: Hybrid, warfare, conventional, geopolitics, sentiment, hashtag, tactics

INTRODUCTION

Hybrid warfare is a fusion of conventional and unconventional warfare strategies where the lines between military and non-military, combatants and non-combatants are blurred. Hybrid wars integrate military operations with subversion, cyber-attacks, misinformation, and other hybrid means to destabilize an enemy state.(Hoffman and Frank,2014) This concept gained wide scholarly attention after Russia's actions in Ukraine and Crimea, which exposed the effectiveness of a combination of direct military involvement with cyber warfare and propaganda campaigns to achieve strategic political objectives without full-scale war.(Kofman et al,2018) Hybrid warfare operates effectively within the gray zone of conflict and severely complicates an adversary's responses. Using various media tools like Twitter in multispectral warfare is an example of modern conflicts where the actors wage wars intelligently and continually degrade a country's social cohesion and political stability. Chaturvedi, 2020) Pakistan's geostrategic location makes it a prime target for propaganda campaigns in which opponents utilize cyber and social media tools to manipulate public perceptions and opinions, sow discord, and destabilize national security.(Azad,2020) In the last decade, Twitter has been identified as an extremely effective tool for hybrid warfare by promoting misinformation and disinformation drives in Pakistan's information space. (Nadeem, Muhammad Ashraf, Ghulam Mustafa, and Allauddin Kakar,2021)

With Pakistan's cybersecurity deficiencies, strategic position, internal and external weaknesses, the existence of the US-India nexus, the Iran-India nexus, and instability and political turmoil in neighboring Afghanistan, Pakistan stands in a critical position of facing hybrid threats both within and outside the country. With the Baloch resistance in Balochistan and religious extremism in the tribal belt, Pakistan faces multifaceted dilemmas that

embody the true essence of hybrid warfare. (Shabbir,2022) To counter them, Pakistan must work on its internal and external vulnerabilities and detect, deter, and nullify the hybrid threats. To fight off the hybrid threats, the government of Pakistan, along with military and law enforcement agencies, formulated the National Action Plan (NAP), which focused significantly on national integration to ensure national security. (Sahill,2018)

Since hybrid warfare thrives on existing vulnerabilities within a given nation/state, the adversaries have exploited the vulnerabilities that have persisted in Pakistan. These susceptibilities include political and economic problems, ethnic and religious extremism, sectarianism, social media activism, insurgent and militant groups, nationalism, NGOs, propaganda, and disinformation/misinformation/fake news. (Azad, et al. 2022) According to General Qamar Javed Bajwa, "*We are now confronting hybrid conflict where the focus is shifting to subversion on religious, sectarian, ethnic, and social issues. Unfortunately, it is a major onslaught; a major part of fifth-generation warfare. Pakistan is being subjected to hybrid applications massively, and we are aware of that.*"(Raazia, Izzat, Muhammad Ahtasham Jan Butt, and Iqra Rafaqat, 2022)

Furthermore, Twitter is often exploited during elections, political activities, radical movements, referendums, etc., to target a country's internal liabilities and weaken state mechanisms from the inside. However, extensive research has yet to explore the role of Twitter in hybrid warfare in Pakistan.

Methodology

With the emergence of new data collection technologies, digital media platforms have created new opportunities for researchers to collect large amounts of data and achieve high-quality relevance and impact amid transformations and changes in social sciences phenomena. (Mohamed et at, 2022).

This study aims to analyze how Twitter acts as a tool for executing hybrid warfare strategies by disseminating propaganda narratives on the platform in the context of Pakistan. This research employs computational social science methods to analyze a dataset of tweets through sentiment analysis and network construction. The study also utilized a mixed-methods approach, analyzing hybrid warfare strategies on the Twittersphere. Twitter, a micro-blogging site of the era, is flooded with opinions and emotions, where people share their ideas in posts and tweets, and has become one of the most effective sources for sentiment analysis. (Bisht.et al, 2022)

The quantitative phase of the research initially includes manual classification of the tweets as pro-Pakistan, anti-Pakistan, and neutral sentiments based on their content by three independent persons. Further building a supervised machine-learning model to validate the accuracy of the tweets' sentiments gathered from Twitter's Application Programming Interface (API). The researcher also analyses the community response to pro-Pakistan and anti-Pakistan hashtags through network construction. Among Twitter users, networks are constructed to analyze the interactions, connections, and reactions between the users using any specific hashtag, where one user likes another's tweets or mentions them in a tweet.(Türker, İlker, and Eyüb Ekmel Sulak, 2028)

In the qualitative phase of the study, the researcher conducts semi-structured interviews with experts from warfare studies and political communication to understand polarized sentiments and comprehend the contributing factors that disseminate propaganda narratives through Twitter. Braun and Clarke's approach to Reflexive Thematic Analysis (RTA) was utilized to analyze qualitative data that facilitates the identification of themes and patterns in the semi-structured interview data. Reflexive thematic analysis allows researchers to engage deeply with the data and balances theoretical flexibility and research inquiries.(Byrne,2022)

March 2022 witnessed a wave of pro-Pakistan and anti-Pakistan sentiments or being part of hybrid warfare campaigns against Pakistan. Accordingly, tweets were gathered from seventy-five prominent hashtags using Twitter's Application Programming Interface (API). This period aligns with various incidents of hybrid warfare, significant political activities in Pakistan, and many global events occurring in the region, like Pakistan and China's standoff with India over Kashmir and the US withdrawal from Afghanistan. However, only fifteen hashtags containing more than 500 tweets each were selected as a case study to explore how propaganda narratives are disseminated, discussed, questioned, and responded to on Twitter as part of hybrid warfare campaigns. Therefore, the total number of tweets gathered from the selected hashtags was 104,173 listed in Table 1. Likewise, 200 tweets in the English

language were randomly chosen from each hashtag to ensure that the collected data represents the overall population, which makes a total of 3000 tweets for further sentiment analysis as a study sample.

Table 1: Selected Hashtags for Sentiment Analysis and Network Construction

Serial No	Selected Hashtag	Quantity of Tweets
1.	#KashmirFiles	36931
2.	#Kashmir	23745
3.	#Genocide	22268
4.	#Balochistan	5466
5.	#KashmirFilesTruth	3763
6.	#EndEnforcedDissapearances	2223
7.	#StopBalochGenocide	1399
8.	#BalochistanIsNotPakistan	1347
9.	#Pakistan	1263
10.	#FreeBalochistan	1202
11.	#SanctionPakistan	1129
12.	#ReleaseHafeezBaloch	1101
13.	#SaveBalochMissingPersons	705
14.	#Sialkot	629
15.	#KashmirAgainstTerror	501
Total		**104173/-**

Subsequently, the tweets are subjected to a meticulous manual classification process, wherein three independent assessors thoroughly categorize each tweet into one of three distinct sentiment categories: pro-Pakistan, anti-Pakistan, or neutral to minimize bias. The independent overseers manually evaluate the emotional tone and polarity of the tweet's content, identifying patterns of opinions associated with specific propaganda narrative campaigns on Twitter related to Pakistan. This manual classification is the cornerstone of sentiment analysis, laying the groundwork for supervised machine learning algorithms.

Moreover, a criterion was also conceived for manually classifying tweets within each hashtag to enhance transparency and reduce potential prejudice. The primary criteria for a tweet's pro-Pakistan sentiment include (a) positive endorsement of Pakistan, its policies, peace initiatives, and diplomatic relations, (b) proliferation of positive contents, economic developments, celebrations, national pride, and unity, (c) positive sentiments concerning Pakistan, and (d) denunciation of opinions/views contrary to negative sentiment towards Pakistan.

On the other hand, the objective criteria for anti-Pakistan tweets sentiments incorporate (a) downplaying Pakistan by projecting tensions with neighboring countries, international isolation, sponsoring terrorism, and extremism, (b) Amplification of negative propaganda narratives, (c) manifestation of negative feelings towards Pakistan, and (d) accusation of opinions/views contrary to positive sentiments towards Pakistan, exaggeration, and disinformation. The allusion to facts and no explicit or overt preferences toward either sentiment class remained the objective criteria for sentiments in neutral tweets.

Machine Learning Strategies

Machine learning techniques use various strategies to classify the labeled data. However, the models or classifiers may require training of the data as per research requirements. Training the supervised machine learning models will effectively make future predictions easier.(Osisanwo, et al, 2017).

In this study, *TF-IDF (Term Frequency - Inverse Document Frequency) Vectorization* was employed to measure the frequency of a term (word) in the contents (document) of the tweets. *Term frequencies* occur more commonly in a document to promote words appearing within the document. (Kabra, Bhavna, and Chetan Nagar, 2023). However, the *Inverse Document Frequency* helps eliminate and diminish the influence of standard terms spread across the dataset's contents. The combination of TF and IDF ensures that each word's vector represents its relative importance in the tweet while accounting for its commonness across all documents. TF-IDF is beneficial for sentiment analysis as it highlights essential words expressing sentiment. (Abubakar, Haisal Dauda, Mahmood Umar, and Muhammad Abdullahi , 2023) Based on the classified features by TF-IDF, four machine learning models were chosen to classify the sentiment of tweets in this study. The choice of each model was based on the following: -

1. **Logistic Regression.** This model is suitable for binary or multi-class outcome prediction. It produces a probability understanding of classifications and is particularly good with linear decision boundaries, which are generally good enough when working on very high-dimensional text data. (Nhu. et al,2020)

2. **Support Vector Machine (SVM).** SVM is robust in high-dimensional spaces like text data. It can find the optimal hyperplane that accentuates the margin between different sentiment classes. So, presenting clear lines of partition in sentiment analysis is essential to analyze the content of the tweets.
3. **Decision tree model**s are the answer to their interpretability qualities alone. If carefully trained on the dataset, they can produce non-linear relationships and interactions between terms and be overfitted in high-dimensional spaces.
4. **Perceptron.** The perceptron is well-suited for effectively learning weights that map inputs (words represented by TF-IDF) onto outputs (sentiment classes), with a lightweight nature as a type of neural network. They can divide non-linear data and display it nicely in complex linguistic patterns.Moreover, the performance metrics of each model were also evaluated using several metrics to obtain a comprehensive understanding of exactly where each model lies in its effectiveness. Accuracy measures the ratio of total correct predictions (both positive and negative) to the total number of predictions. It provides an overall precise, intuitive measure of model performance.[1] Precision indicates the accuracy of optimistic predictions. For sentiment analysis, high precision means a model can recognize true positive spirits without categorizing negative spirits as positive. F 1-score is the harmonic mean of precision or recall is taken by combining precision and recall into a single metric. When a class distribution is heavily skewed, as with the Imbalance Tab, this is especially useful because it evens influence from precision (toward virtually all precision) and recall (the opposite).

These performance metrics were essential for choosing the best model for the dataset. This guarantees accurately predicting sentiment but also strikes a balance between correctly recognizing pro-Pakistan and anti-Pakistan sentiment without biasing and frequently occurring classes. These reasonable performance metrics ensure that the supervised machine learning models for hybrid warfare effectively capture subtle tones in Twitter sentiments for analysis.

Discussion and Analysis

This study explores the complex dynamics of hybrid warfare within Pakistan's context on Twittersphere. It provides sentiment analysis, network construction, and analysis of community responses. Moreover, a reflexive thematic analysis approach was adopted to explore hybrid warfare and political expert interviews to identify themes, patterns, online discourses, and factors contributing to spreading propaganda narratives against Pakistan in the information domain and digital era.

The Sentiment Classes – Pro/Anti-Pakistan Hashtags

Sentiment analysis is well-known as opinion or emotion mining. Opinions are the fundamental feelings of every human activity, as they are essential influencers in daily life.[2] The study focuses on sentiment analysis of the tweets and community responses to these digital conversations. The collected data has undergone a thorough and systematic review to ensure the findings' accuracy, reliability, and efficacy. A corpus of tweets was gathered from Twitter APIs, developing a foundation for sentiment analysis. The collected data represents various discourses, narratives, opinions, and perspectives circulating on Twitter regarding Pakistan and its geopolitical topography.

The Anti-Pakistan Hashtags

In the digital media domain, where online platforms delve into a plethora of political discussions and dissents, studying anti-Pakistan hashtags becomes paramount aimed at criticizing or opposing Pakistan. The sentiment of the anti-Pakistan tweets labeled Muslims as terrorists and Pakistan as a terrorism-sponsoring country, where the words 'jihadists,' 'enslavement,' 'extremists,' 'terrorists,' and 'destructors of the local institutions' were repeatedly used in the context of Pakistan. The Pakistan Army and government were discussed as responsible for the insecurity and instability within Pakistan, along with Kashmir and Gilgit Baltistan. The tweets in the anti-Pakistan sentiment class propagated and described the historical contents as accurate, factual, authentic, and genuine, especially since most of the tweets highlighted that Pakistan, through its military, forcibly occupied Balochistan and Kashmir. Most of the tweets refer to the Pakistani military as the

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Punjabi Army, which is responsible for the genocide of Pashtuns, Balochs, and even Kashmiris. The severe nature of tweets persists throughout the study sample. Such tweets discussed accusations regarding human rights violations in Khyber Pakhtunkhwa and Balochistan provinces. Moreover, they criticize the deniers of the genocide acts in these provinces.

In the anti-Pakistan sentiment class, Pakistan is presented as responsible for the instability in the region as well, including the situation in Afghanistan and what is happening in Iran and Kashmir. The content of the tweet links Pakistan as a supporter of the Taliban, involved in the genocide of the Hazara community, as well as supporting proxy wars in Iran. Many tweets labeled Pakistan as the occupier of Balochistan and Kashmir, showing Pakistan as a terrorist state, a terrorist production factory, an epicenter of terrorism in the region, and a hypocritical country. The topics of the humanitarian crisis in the anti-Pakistan sentiment class highlight state agencies as responsible for the killing of Baloch-educated youth and present their supporters as death squads involved in the Baloch genocide. Additionally, the topos regarding Pakistan's economic crises labeled Pakistan as a regional threat, corrupt because of FATF, and bagger due to a lack of IMF support and deals.

The Pro-Pakistan Hashtags

The pro-Pakistan hashtags showcase Twitter's discourse advocating for Pakistan within the digital realm and provide insight into the effectiveness of shaping online public perceptions against anti-state narratives and movements. The tweets in the pro-Pakistan sentiment class indicate that the Pashtun Tahafuz Movement (PTM) and Baloch insurgent groups are anti-state and Indian-sponsored organizations. Tweets in this class highlighted that the Balochistan Liberation Army (BLA) and Balochistan Liberation Front (BLF) are terrorist groups and are involved in anti-Pakistan activities with the support of India. Such terrorist groups are also responsible for the genocide of educated Baloch youth, which is used in terrorist attacks in the province. The pro-Pakistan tweets admire the deployment of security forces in Balochistan and refer to them as brave soldiers serving Balochistan's people.

On the other hand, they labeled insurgent groups as Indian mercenaries and puppets. The Baloch militant organizations operating in Balochistan are held responsible for hurdles in the province's development by targeting economic projects. Tweets labeling hybrid threats from Afghanistan against Pakistan emphasize Indian sponsorship of the Taliban.

Moreover, pro-Pakistan tweets hold the Modi government and Hindutva regime responsible for the Muslim genocide and suppression of the people in Kashmir. The sentiment considered the people fighting in Kashmir against India are shown as freedom fighters and fighting for self-determination. Tweets also supported voices for human rights, journalists, respect for humanism, and the people of Kashmir.

The Neutral Tweets

Tweets that express a neutral tone essentially document neutral sentiment in both hashtags and argue for journalism, journalist values, human rights importance, etc. Neutral tweets are mainly discussed and characterized by useful topics and no linkages with propagandist narratives related to Pakistan.

Sentiment Analysis through Machine Learning Models

Following independent individuals' manual labeling and analysis of tweets, the labeled tweets underwent machine-learning algorithms to avoid biases, validate the accuracy of manual categorization, and sentiment of the dataset. The machine learning algorithms in this study achieved great success in sentiment classification.

First, the TF-IDF (Term Frequency-Inverse Document Frequency) vectorization was applied after loading and reviewing the preprocessed and manually categorized dataset with three different sentiment classes. The TF-IDF measures the frequency of a term (word) in the dataset (document) and helps to diminish the weight of standard terms spread across the documents. (Qaiser, Shahzad, and Ramsha Ali ,2018) The TF-IDF vectorizer was then functional on the sentiment column of the dataset, which generates as a matrix where each row corresponds to a document, and each column represents a word, filled with scores that reflect the importance of each within the document collection. The TF-IDF vectorization also ensures that each vector represents its relative importance in the tweet while accounting for its commonness across all documents. Accordingly, the dataset is split into training, testing, and validation sets, which was further used for sentiment analysis. After splitting the

dataset, the distribution of the data amongst the sets (train, test, and validate) in terms of three different classes pro-Pakistan, anti-Pakistan, and neutral, was plotted as shown in Figure 1.

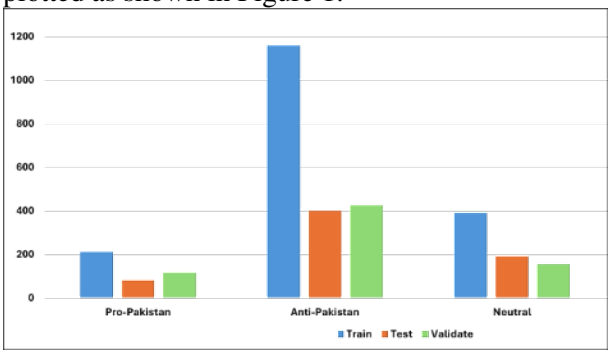


Figure 1: Distribution of Classes

Secondly, based on the TF-IDF vectorization, the training sets were trained using four different machine-learning models: (1) Logistic Regression, (2) Support Vector Machine (SVM), (3) Decision Tree, and (4) Perceptron to generate predictions upon testing sets. Therefore, each model is trained on manually classified tweets, learning to discern patterns, tones, and semantic cues indicative of specific sentiment categories. Training the dataset consists of data objects whose classifications are known.

Once trained, the machine learning models are tested, generating predictions for a testing dataset. The predictions generated by each model are meticulously evaluated using a range of **performance metrics**, including accuracy, precision, and F1-score. Figure 2 represents the most remarkable accuracy of the results, with the Logic Regression and Perceptron models scoring 73%, the highest accuracy among all four models. The SVM model had the highest Precision score of 77% followed by Logic Regression which scored 74%. Lastly, the Perceptron model had the highest F1 score out of all four, with a 71% result.

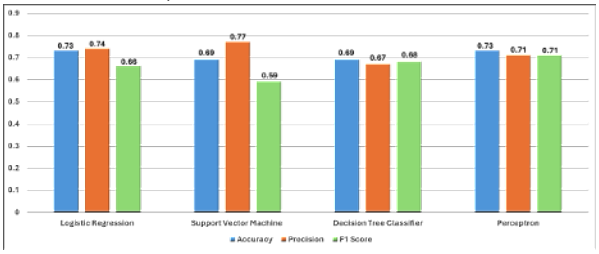


Figure 2: Scores by Model

To further corroborate the accuracy, the BERT (Bidirectional Encoder Representations Transformer) model, a language model based on the transformer architecture, was utilized to generate predictions, and evaluate the performance metrics as discussed above. The graph in Figure 3 shows that the Support Vector Machine (SVM) model achieved the highest accuracy of 73%. On the other hand, the Logic Regression model has the highest precision and F1 score, scoring 71%, respectively.

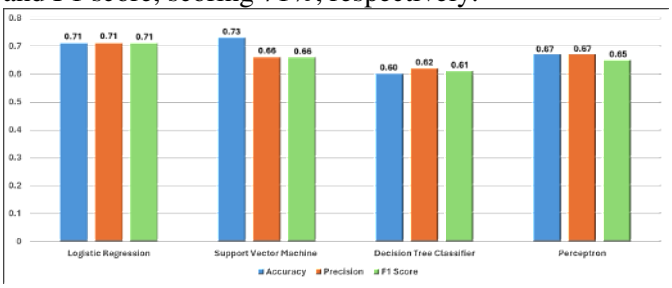


Figure 3: Scores by BERT Model

Generating Prediction for Sentiment Analysis

Now, the models are trained and can be used to make predictions for new, unseen tweets/datasets. For this, a get predictions function was created to generate the predictions. This function repeats the process through the data loader, gathers the results, and returns them as a tensor. This function preprocesses the input (tweets) using a vectorizer, converts their content into features, and based on the model's training, generates predictions regarding sentiment analysis. Table 2 shows the classification reports generated from the model after evaluation through the performance matrix.

Table 2: Prediction Function's Outcomes

Classes	Precision	Recall	F1-score	Support
Pro-Pakistan	0.29	0.29	0.29	17
Anti-Pakistan	0.84	0.90	0.87	103
Neutral	0.50	0.37	0.42	30

In machine learning techniques, the **Confusion Matrix** is a performance evaluation tool that represents the accuracy of the classification model.(Gaye, Babacar, and Aziguli Wulamu, 2029) Therefore, in this study, a confusion matrix, shown in Figure 4, was also created, which displays the distribution of the "True Sentiments" against the "Predicted Sentiments." The outcomes through confusion matrix show approximately 93% validation accuracy as anti-Pakistan sentiments among the datasets.

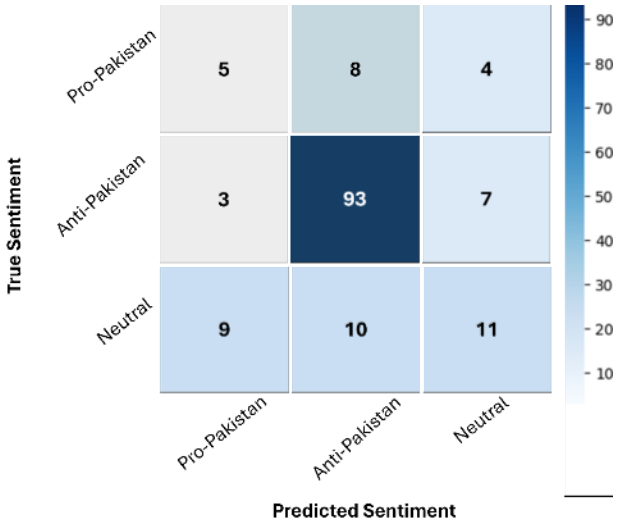


Figure 4: Confusion Matrix of the Sentiment's Accuracy

Lastly, to display the accuracy of the model, a graph plot was generated (Figure 5). This chart flashes the probabilities of correctly classifying the data into each sentiment class and shows a clear overview of the model's correctness and assessment.

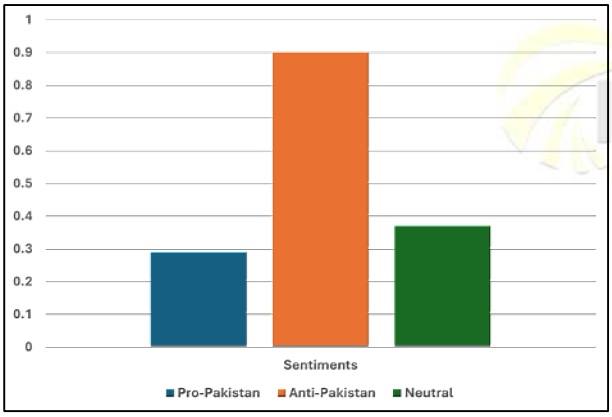


Figure 5: Probability of Classifying Data into Sentiments

Overall, this study employed various sentiment analysis techniques to analyze sentiments in a Twitter dataset. Research outcomes demonstrated that machine learning models produced the most incredible accuracy and precision results in understanding the concept of hybrid warfare campaigns on Twitter.

In general, machine learning techniques are considered standard learning strategies and can be extremely viable at times, but they require little effort to achieve accurate results. Moreover, it was expected and proved that three independent persons' manual sentiment analysis method provides the desired results as expected from supervised machine learning algorithms. Additionally, the sentiment analysis results are synthesized and interpreted to reveal the prevailing sentiment trends, patterns, and dynamics within the Twitter discourse surrounding Pakistan and its geopolitical affairs. The findings offer valuable insights into the sentiment expressed by Twitter users, shedding light on prevailing narratives, ideologies, and public perceptions about Pakistan and its geopolitical landscape.

Network Construction for Analysis of Community's Responses

The network structures and the type of information flow reflect an enormous impact on the development of information campaigns on Twitter in case of Pakistan. Networks are constructed to symbolize the connections of Twitter users with each other. The network's graphs represent user interactions when one person responds to another tweet via retweets or mentions in a tweet. (Sadri,2028) Focusing on the hashtags that express either supportive or opposing sentiments in this study, the researcher created two separate network structures for pro-Pakistan and anti-Pakistan communities. In this approach, the researcher examined how interactions and connections among the users in a community are formed within these groups on Twitter.

Community Responses to Pro-Pakistan Hashtags

The networks that foster **pro-Pakistan narratives** are highly dynamic and inherent within the Twitter discourse and showcase high-density and centralized nodes. Hence, they facilitate the spread of information on a grand scale. This structural configuration enables the swift and efficient mobilization of supporters and amplifies messages on Twitter. The pro-Pakistan network also showed a remarkably well-spread, substantially giant group, indicating an organized cluster of interconnected users, displayed in Figure 6. Moreover, apart from the vast component, several smaller interconnected communities were discovered in an analogous network configuration across diverse perspectives.

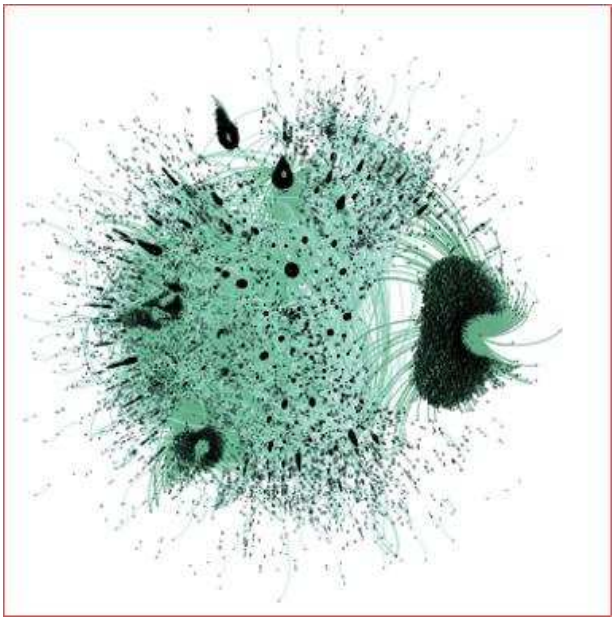


Figure 6: Pro-Pakistan Network

Community Responses to Anti-Pakistan Hashtags

The anti-Pakistan networks exhibit a more fragmented and decentralized configuration and show a strikingly distinct network topology due to the absence of a single giant component. Instead, the network structure of the anti-Pakistan hashtag showcased the presence of multiple large communities of different clusters of users interconnected cohesively within their corresponding domains. In this network, it is also observed that the communities responding with anti-Pakistan hashtags are more densely packed with interactions, presenting robust interlinkages and high engagement levels among the users of each group. This network graph (Figure 7) represents a substantial deviation from typical network patterns visible in the real world, indicating a specific pattern among the anti-Pakistan hashtags. Moreover, this network structure facilitates quick information flow and dissemination on Twitter.

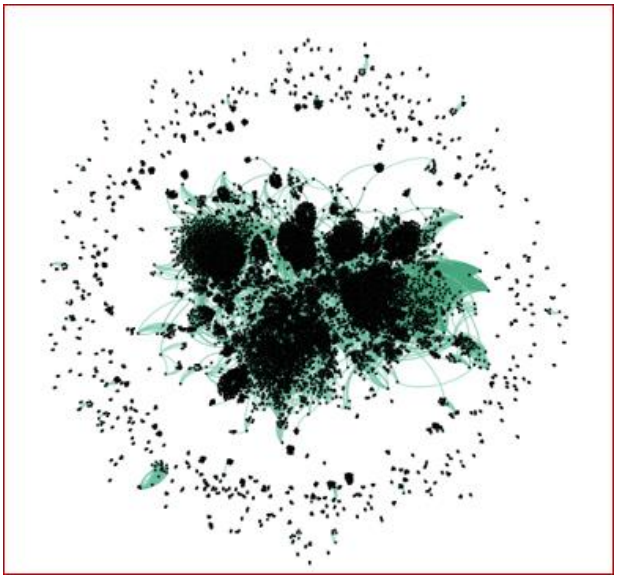


Figure 7: Anti-Pakistan Network

The network construction and analysis of pro-Pakistan and anti-Pakistan hashtags on Twitter provide sufficient empirical evidence regarding the hypothesis of the potential use of Twitter as a tool for hybrid warfare campaigns. Moreover, the network analysis of pro-Pakistan and anti-Pakistan communities also exhibited two separate attributes, highlighting the nuanced nature of warfare in the information domain. These networks also shed light on the complex landscape of hybrid warfare on Twitter, where the platform is efficiently used for information propagation, narrative building, and interweaving to shape perception and influence public discourse.

Hybrid Warfare Expert's Opinions

Adversaries leverage misinformation, disinformation, and propaganda campaigns through digital media platforms, particularly Twitter, illustrating the sophistication of hybrid warfare tactics. The experts identified a pattern of themes and described how technological advances and cyber maneuvers are performed on Twitter to facilitate hybrid warfare strategies in information space of Pakistan. The influence operations on the platform occur within minutes and hours, demonstrating the immediacy and global reach of the campaigns to impact public perception, affecting the country's national security.

Pakistan faces multiple internal and external challenges due to its geographical location, and adversaries effectively manage the existing fault lines through various hybrid means and further

exploit the weaknesses. The weak economic dimension and the narratives of depending on IMF loan schemes are widely campaigned and remained as a broader strategy of the enemies to cripple and destabilize Pakistan by undermining confidence in its economy. Economic espionage, weakening Pakistan at international forums, harming Pakistan through FATF, IMF coercion, and Indian efforts to deny Pakistan's entry into multilateral and regional forums are the main circulating themes on Twittersphere, and it is emphasized that Pakistan's economy has been mortgaged to the IMF. Themes indicate that economic narratives are a potent tool for propaganda on Twitter because they enable adversaries to project an image of a state staggering on the brink of instability and incompetence.

The polarized nature of Twitter reveals the successful execution of attempts to manipulate societal divisions, such as sectarian, ethnic, and political lines, a critical element of hybrid warfare on social media forums. The enemies of Pakistan are propagating the ethnic difficulties where Balochs and Pashtuns feel that they are being neglected and are not getting their due share, with the view that the federal government and Punjab is controlling the natural resource exploration and the revenue generated from mega projects. Similarly, religious phonetics, where religious leaders have been applying religious laws like the blasphemy law and using street power against Qaidianis or Shias, even against the Christian community, is another serious challenge. Themes reveal that manipulating societal divisions plays a crucial role in the propaganda narratives developed by adversaries on Twitter. The amplification and fabrication of rifts that adversaries use as building blocks to construct and disseminate narratives designed to split society and create pressure on its political and social existences.

The boosting of digital literacy and public awareness systematically addresses the elements behind the propaganda narrative's propagation on Twitter as countermeasures. Experts emphasize educating the public, especially youth, about social media interaction and distinguishing between reality and fake news. The experts also suggested that digital media literacy should be incorporated into school curricula as part of the National Action Plan. Such themes emphasize the comprehensive nature in which propaganda narratives must be challenged and defeated through effective awareness campaigns using the same platforms. Hybrid information warfare is a series of attacks in the information domain and a continuous threat that demands a sustained approach to adaptation, countermeasure, and defense.

The warfare experts also emphasized the need for a robust cybersecurity regulatory apparatus and the adoption of a digital crime law to ensure a safer online environment. It is the responsibility of the government of Pakistan and state institutions to make the public more sensitive to the use of digital media platforms. Moreover, understanding the importance of international cyber-cooperation with states worldwide and, accordingly, developing the capacity of institutions to act against such real-time threats.

Conclusion

Hybrid wars are complex modernistic phenomena that adversaries wage through systematic and pragmatically employing conventional and unconventional strategies that work in any situation. The main target of such warfare is to influence the opinions, thoughts, and emotions of the general population, decisions, and policymakers through influence operations, propaganda, and disinformation campaigns. In such wars, the lines between peace and conflict, citizens and military, combatants, and non-combatants, are significantly spontaneous and obscured. In addition, the adversaries exploit the target country's various political, social, and economic fault lines to achieve their political or intended agendas.

This study systematically analyzes hybrid warfare strategies on the Twittersphere within Pakistan and explores a nuanced understanding of disseminating propaganda narratives in the digital age. The sentiment analysis of the Twitter dataset provides substantial knowledge of the prevailing trends, narratives, perceptions, and ideological connections within online discourses contiguous to Pakistan's geographical and geopolitical position. The tweet's content in both pro-Pakistan and anti-Pakistan sentiment classes appeals to emotions, religion, nationality, social identity, and ethnicity. It propagates propaganda narratives that have a significant impact on the population of Pakistan. Similarly, analyzing the community's responses to pro-Pakistan and anti-Pakistan hashtag networks on Twitter highlights a multi-layered and structured composition of networks where interactions and engagement strategies intertwine to influence and shape public perceptions.

Moreover, reflexive thematic analysis of the hybrid warfare expert's interviews offers more profound insights into the multifaceted challenges of hybrid warfare in Pakistan. The major themes and factors contributing to the vulnerabilities and spread of disinformation and propaganda narratives provide a holistic understanding of the evolving hybrid warfare tactics on Twitter against Pakistan. The experts comprehensively presented awareness of the challenges and opportunities in the digital media domain and focused on formulating policies and strategies to protect Pakistan's integrity and national interest while countering the fusion of such threats. Furthermore, the government must promote digital media literacy, enhance critical thinking in educational institutions, invest in digital literacy, and train and equip the citizens mainly the energetic youth to understand and counter the negative impact of social media campaigns, particularly Twitter, as a tool for hybrid warfare.

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