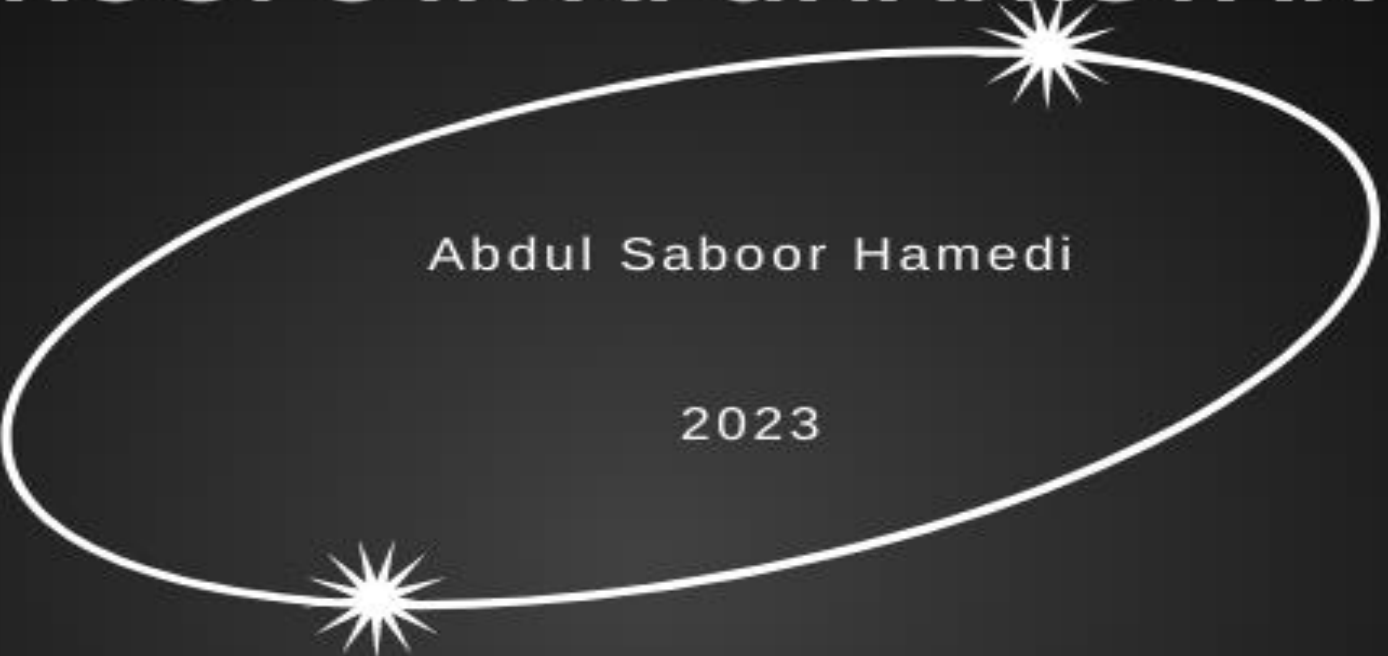# GENDER AND WOMEN: EDUCATIONAL PERCEPTION AMONG VARIED CATEGORY GROUPS IN AFGHANISTAN

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Gender and Women: Educational Perception Among Varied Category

Groups in Afghanistan

Gender and Women: Educational Perception Among Varied Category Groups in Afghanistan

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Introduction

This research will examine the tones of the tweets posted by Afghan people, more specifically activists male and female, and Taliban officials, which currently rule Afghanistan. The topic of women's education is presented in this study. The goal is to analyze the tweets of activists as well as the officials to gauge their level of support for women's education. In this analysis, we look at the sentiment distribution across several topics connected to women's education and compute the percentage of positive tweets from women. Descriptive data are included, as well as a chi-square test of independence and a comparison of sentiment ratings across sexes and those between activists and government officials/employees. The study wraps up with a review of the most popular phrases and terms that were found in the tweets.

In nations like Afghanistan, where women's access to education has been severely restricted, this is an especially pressing issue. To better understand the feelings and level of support for women's education among activists and officials in Afghanistan, this analysis focuses on tweets written by both sides. We hope to learn more about these activists' including officials' thoughts and feelings by conducting sentiment analysis on their tweets.

Research Question

This study aims to examine the role that gender plays in Afghans' views on women's educational opportunities. The research question to be answered is: To what extent does gender, controlling for political inclination, affect people's perception of women's access to education?" The study uses Twitter data to discover if there are any gender-based trends or disparities in how people feel about lifting the restriction on women's education. It stresses the necessity of destroying oppressive systems to realize gender parity. Data was gathered from Twitter, a widely used social media platform, and analyzed using content analysis techniques to see how people feel about the topic. The study attempts to illuminate the complexity of gender and its role in forming attitudes regarding women's education by investigating patterns and trends in people's perspectives. The findings will help educated people and those fighting for gender equality in the classroom better understand Afghan women's obstacles and inequities while trying to get an education.

Data Collection

The study has individually collected the Tweets. There are three different approaches to recognize the activists, to fetch their tweets. First one, the researcher has joined the Afghan Twitter spaces, to recognize them from there. The second one, through google, we can find them on google with their background. The third one is, activists have been frequently invited by Afghanistan's TV, there are several TV channels which has hundreds of followers and views inviting activists in daily bases. E.g., "TOLOnews, ArianaNews "

For the Taliban officials, we have single approach, which is "Zabehulah_M33", "Official Twitter Account of the Spokesman of Islamic Emirate of Afghanistan, Zabihullah Mujahid". This account is the official account of Taliban spokesman, and he has followed other officials we can find them easily on his followers. Also, we did the same thing for "mobeenkhan1231" which a famous person

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on social media, Mobeen is an active member of the Taliban and most of the official has followed him.

To analyze the data researcher have taken sample which consists of 54 different Twitter users, whether its activists are the Taliban, but the number of tweets could be different, dependent on the users how active they are. The duration of data collections starts from 2021, December, 01 to 2023, March, 30.

Hypothesis

H1: Women are more likely to have positive sentiment on women's education or support women education compared to men. The idea behind this hypothesis is that women may have a more nuanced grasp of the negative effects of restrictions on their ability to proceed with their education and, therefore, be more vocal and disagree with the ban on education. Historically, women in Afghanistan, dominated by male society, face serious obstacles to gaining an education and engaging in society and politics. Due to structural gender inequities, Afghan women have suffered disproportionately from restrictions on their educational ability. They know from personal experience how prejudice and other educational obstacles may limit one's options in life. Therefore, it is reasonable to assume that women may be more likely to oppose the ban on women's education because of their experiences. Poverty and social inequality are both pervasive issues in Afghanistan. Because of these obstacles, the educational opportunities for women are pitiful. There have been great restrictions on women's education during the past four decades. Women endured unacceptable policies from 1996 – 2001; they were not allowed to proceed with their education and could not participate in politics to decide their future. The researcher mentioned earlier that Afghan women have historically experienced restrictions on education, they faced discrimination in education because of their gender, and they were considered inferior in the country. Thus, we can say that it's a group of solidarity today. Women have more positive sentiments and support women's education.

H2: Those who involved in activism are more likely to have more positive sentiment on women education compared to those involved in government. It is expected that activists are more likely to support women education that those affiliated with the government. This hypothesis implies that those who engage in activism, such as those who fight for educational reforms or work to advance women's rights, are more likely to hold positive views and show significant support for women's education. Those who work in government, whether as policymakers or government employees, may be less likely to have a good attitude about women's education. This hypothesis suggests that taking an activist stance significantly impacts forming and encouraging constructive worldviews and advocacy initiatives aimed squarely at improving educational opportunities for women. It also hints at a potential divide between activists and government employees in worldviews, priorities, and strategies. It is clear that there is a need for more research and study into the complex interplay between activism and government participation in molding attitudes about women's education. Insight into the myriad factors influencing public support for women's education can guide policies and activities to expand women's access to education.

H3: Activists are more likely to support women's education compared to the ordinary people and the Taliban. The hypothesis suggests that activists are more likely to support women's education compared to ordinary people and the Taliban. Activists, driven by their dedication to social justice and belief in the transformative power of education, actively advocate for gender

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equality and view education as a fundamental right and tool for empowerment. They passionately use platforms like social media to raise awareness, generate discussions, and mobilize support for women's education initiatives. In contrast, ordinary people may exhibit varying levels of engagement and awareness on the issue, while the Taliban's lesser emphasis on women's education reflects their different priorities. The active support from activists for women's education demonstrates their commitment to breaking down barriers, challenging societal norms, and promoting equal opportunities for all.

Research Methodology

To test our hypothesis, we have used content analysis with sentiment analysis (Evans & Clark, 2015). Along with chi-square, which evaluates the consistency between an observed percentage and theoretical predictions; test for statistical significance between two variables often representing nominal or ordinal levels of measurement (Lewis & Burke, 1949), also, it is common practice to use cross tabulation (crosstab) as an analysis method to compare the outcomes of one or more variables with those of another. Also, we have labeled our data using five different keywords, which are related to the study, and frequently appears on tweets, which are 'education', 'school', 'university', 'women', 'girl', if any of these keywords appear on tweets it denotes with one (1) if not its zero (0). Basically 1 means the tweet related to one of these keywords if not the tweet about something else, which we call it as a neutral tweet, also, we remove tweets like "beautiful women", or "good school", these tweets does not relate to our study, unless the tweets talk about current topic, such as "women ban education", or "girls cannot go to school", the labeling process done by machine. Also, one keyword which we used is "women education", with this keyword we are able to find the exact tweet which is related to women education and help as to get a good result of based on the tweet, because the keyword clear and related to women education.

Women's Education: From an Activist Perception

In this section we focus on the view of male and female activists, both consists of 54 different users. The total amount of tweets which achieved from male is (17,079), while female is (34,837). Female has more tweets than male, this shows that female is more active on Twitter. At first, we use sentiment measurements as a starting point for investigation to get insight about their tweets, this is essential as starting point. Male activists, (5,180) positive, (8,307) neutral, and (3844) negatives, and the percentage of their positive is (29.8%). While, female activists, (13582) neutral, (13,531) positive, and negative (7,724). Female are mostly impartial and favorable about different issues, including women's education, the analysis found that positive sentiment (38.8%).
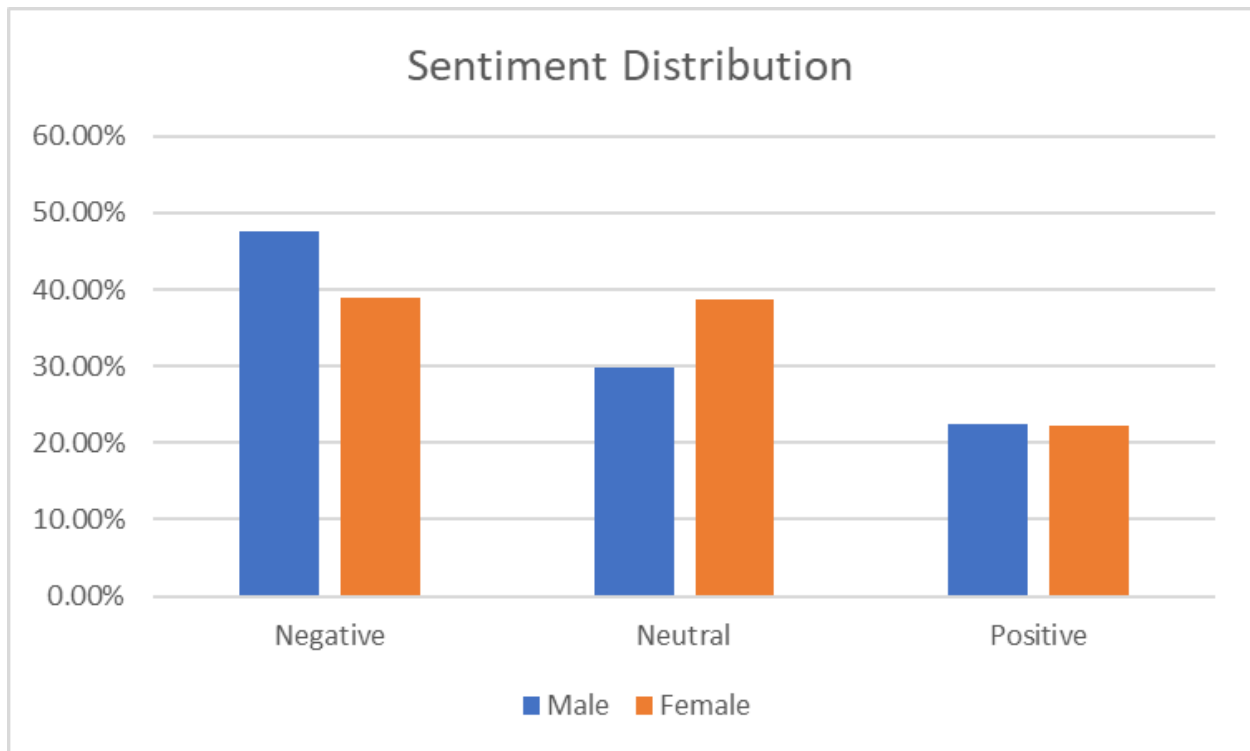
Figure 1: Sentiment Distribution (activists)

Male		Female	
Unclean	Clean	Unclean	Clean
remember world let taliban get away completely banning women education five years one hundred ninety nine	remember world let taliban get away completely banning women education five years	Please support women education Afghanistan	please support women education afghanistan
Women in Afghanistan after the return of the Dark ages—Taliban rule.	women afghanistan return dark ages taliban rule	Almost one Month since surrender Kabul Taliban banned women girl, work, media, sports, and Music Public	almost one month since surrender kabul taliban banned women girl work media sports music public
"The Taliban banned women's education in Afghanistan on the order of Pakistan," claims Hamid Karzai.	Taliban banned women education afghanistan order pakistan claims hamid Karzai	Unfortunately current problem women education work country serious sad twenty first century	unfortunately current problem women education work country serious sad twenty first century
The Taliban are afraid of women's education because they don't want a bright future for Afghanistan	Taliban afraid women education want bright future afghanistan	Today, all universities reopened in Afghanistan after winter break, but ONLY for men. These brave young women are peacefully protesting outside Kabul University against Taliban BAN on women going to university. Let us amplify their voices!	today university reopened afghanistan winter break men brave young women peacefully protesting outside kabul university taliban ban women going university let us amplify voices
Taliban banned girls' education in Afghanistan while many Taliban leaders send their daughters to study abroad	taliban banned girl education afghanistan many taliban leaders send daughters study abroad	Taliban ban Afghan Women Education Basic Human Right Least World Could Ban Taliban	taliban ban afghan women education basic human rights least world could ban taliban

Table 1: Tweets (activists)

Tweets from male and female activists are broken down in detail in Table 1. The table contains both cleaned and uncleaned tweets from activists working to improve educational opportunities for women in Afghanistan. This collection demonstrates the dedication of these individuals to advancing the cause of women's education by providing unique perspectives on the ongoing dialogue surrounding this crucial topic.

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To narrow down the sentiment into five keywords which are women, education, school, university, and girl, this helps us to extract the exact tones of their tweets. Table 2 shows the use of keywords among male and female activists. Among male activists, there is a noticeable trend in the use of keywords. The sentiment analysis of tweets reveals interesting insights about how these topics are discussed. Starting with the keyword "women," male activists predominantly express a neutral sentiment, accounting for 53.76% of occurrences. However, there is also a significant presence of positive sentiment at 29.11%. Negative sentiment, although relatively lower at 17.13%, still represents a notable portion of the discussions. When it comes to the keyword "education," male activists showcase a more positive outlook, with 43.27% of tweets expressing positivity. The sentiment distribution reveals that 41.62% of tweets maintain a neutral tone, while a smaller proportion of 15.11% leans towards a negative sentiment. Regarding the keyword "school," male activists tend to exhibit a relatively balanced sentiment distribution. Approximately 47.47% of tweets maintain a neutral tone, while positive and negative sentiments stand at 27.18% and 25.35%, respectively.

This suggests that opinions and feelings towards schools are varied among male activists. In the case of the keyword "university," male activists express a predominantly neutral sentiment, accounting for 56.84% of tweets. However, there is also a notable presence of positive sentiment at 27.24%. Negative sentiment represents a smaller proportion, accounting for 15.92% of occurrences. Finally, when it comes to the keyword "girl," male activists express a combination of sentiments. The sentiment analysis reveals that 31.07% of tweets express a positive sentiment, while 47.15% maintain a neutral tone. Negative sentiment represents a significant proportion at 21.78%, indicating that discussions surrounding girls can evoke mixed reactions among male activists. Shifting the focus to female activists, the analysis indicates that they utilize these keywords more frequently than their male counterparts. Out of a total of 34,837 occurrences, women contributed 13,615 tweets related to these topics, suggesting their openness to discussing women's education on Twitter. Analyzing the sentiment distribution among female activists, the keyword "women" elicited a mix of sentiments. While negative sentiment accounted for 19.22% of occurrences, a larger portion of 39.61% expressed a positive sentiment, indicating a more optimistic view.

Neutral sentiment constituted the majority at 41.17%. Regarding "education," women activists showcased a higher inclination towards positivity, with 48.55% of tweets expressing a positive sentiment. Negative sentiment accounted for 20.25% of occurrences, while neutral sentiment stood at 31.19%. Similar to their male counterparts, discussions around "school" among female activists exhibited a relatively balanced sentiment distribution. Negative sentiment represented 26.05% of tweets, followed by neutral sentiment at 39.98% and positive sentiment at 33.96%. For the keyword "university," women activists leaned towards a neutral sentiment (43.85%) as well, but positive sentiment (36.51%) held a considerable presence. Negative sentiment accounted for 19.64% of occurrences. Lastly, the keyword "girl" evoked a mixture of sentiments among female activists. Negative sentiment represented 23.29% of tweets, while neutral sentiment accounted for 39.66%. Positive sentiment stood at 37.04%, highlighting a relatively optimistic outlook. We can say that men are more likely to have neutral tone, while women are more likely to express positive tone regarding the five keywords.

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Male						Female				
Sentiment	women	education	school	university	girl	women	education	school	university	girl
Neutral	53.90%	41.71%	47.33%	56.70%	46.96%	41.18%	31.19%	39.98%	43.85%	39.66%
Positive	29.04%	43.34%	27.06%	27.31%	31.09%	39.61%	48.55%	33.96%	36.51%	37.04%
Negative	17.06%	14.95%	25.61%	15.99%	21.95%	19.21%	20.25%	26.05%	19.64%	23.29%

Table 2: Sentiment Analysis of Tweets Containing the Keyword (activists)

The sentiment analysis results reveal interesting patterns in the way both male and female participants expressed their opinions.

Gender	Positive	Negative	Neutral
Male	31.433426	19.524251	49.042323
Female	39.123090	20.593420	40.283490

Table 3: Calculate Sentiment for Males and Female on Five Keywords (activists)

Among male activists, a significant portion (31.43%) of their sentiments was positive, while (19.52%0 leaned towards negativity. The majority (49.04%) expressed a neutral sentiment, indicating a balanced perspective overall. In contrast, female activists exhibited a higher level of positivity, with 39.12% of their sentiments being positive. Similar to males, around 20.59% of their sentiments are negative. However, a slightly lower proportion (40.28%) expressed a neutral sentiment. These findings suggest that there are differences in how males and females express their sentiments regarding the analyzed keywords. To make our result clearer, we provide the result in the format of graph, look at figure 2, the distribution for five keywords, based on the graph, female stay less negative and more positive.
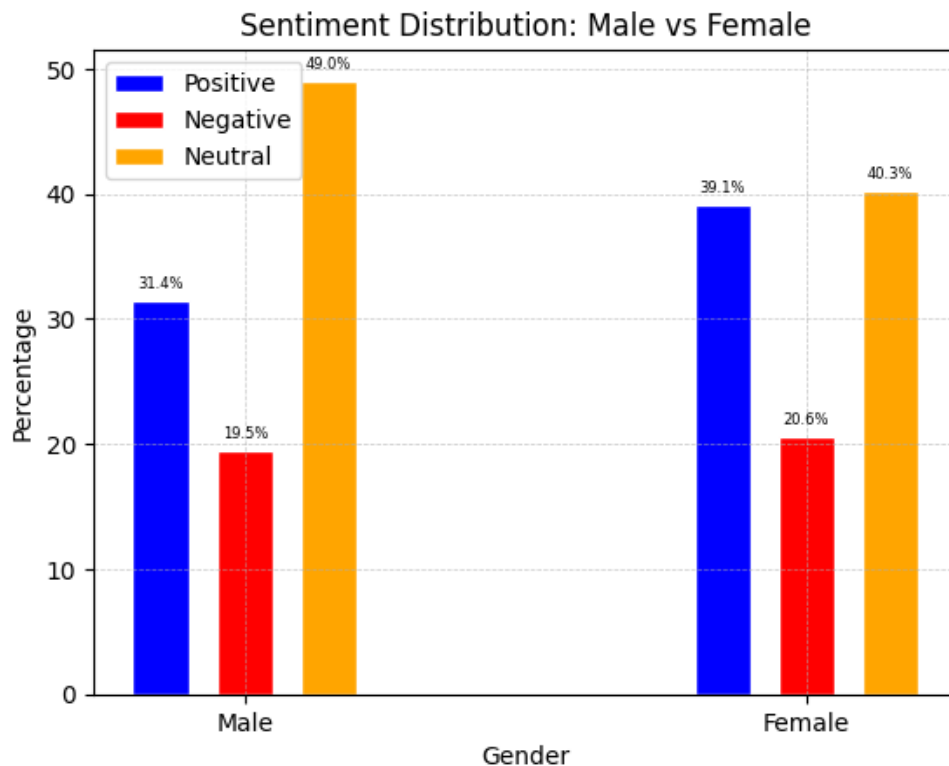
Figure 2: Sentiment Distribution Male vs Female (activists)

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To completely narrow down our data, and specifically look for women's education, we have used keyword of "women education", this allows us to break down the data and look for those tweets which has only these two words.

	Male	Female
Sentiment	Women Education	Women Education
Neutral	59.09%	46.32%
Positive	31.82%	40.00%
Negative	9.09%	13.68%

Table 4: Sentiment Distribution on Women Education (activists)

The table 4 reveals that, among males, the sentiment appears to be predominantly neutral, with a significant percentage of 59.09%, indicating a balanced outlook or perhaps a lack of strong emotional inclination towards women's education. Positive sentiment follows closely behind at 31.82%, suggesting a favorable perception and support for empowering women through education. However, negative sentiment among males remains present, though comparatively lower at 9.09%, highlighting some reservations or concerns regarding this topic.
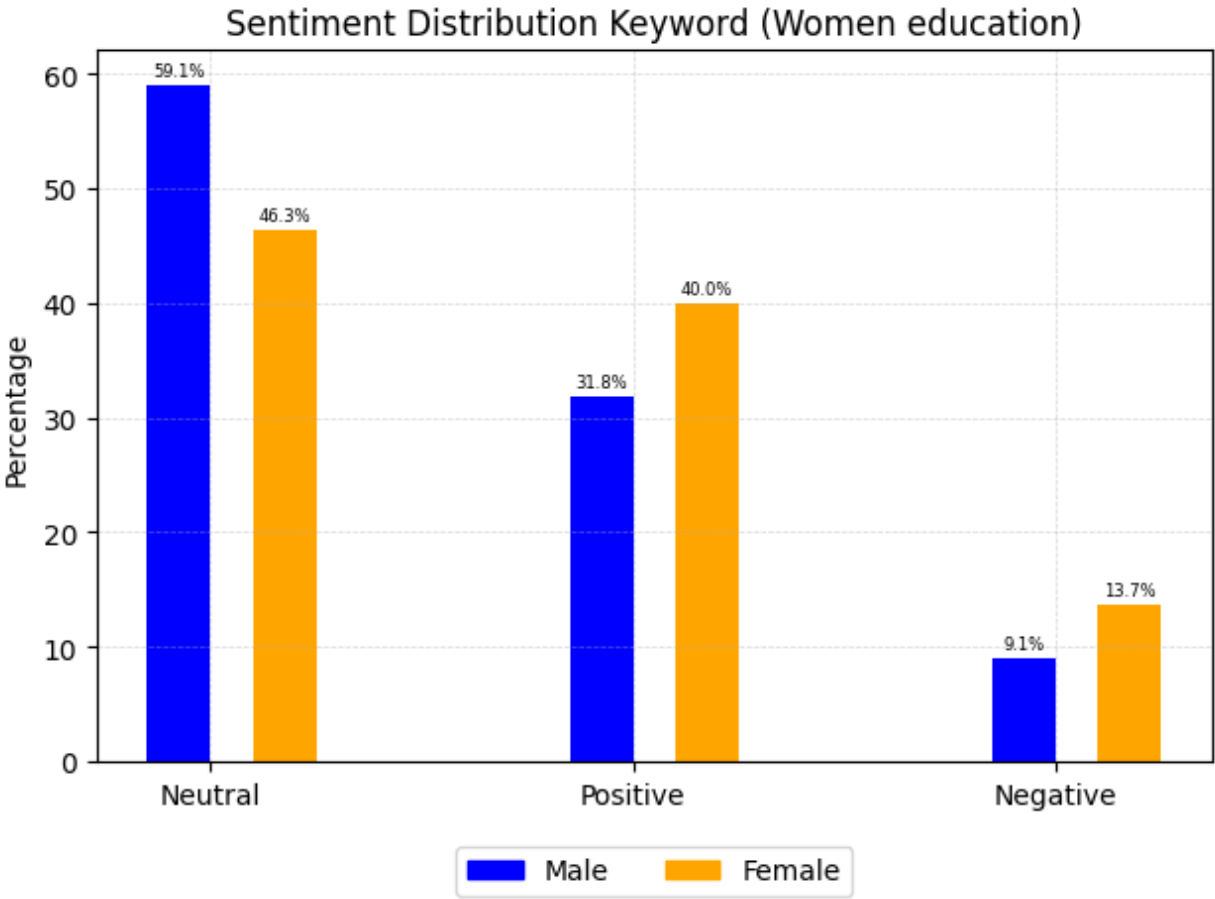
Figure 3: Sentiment Distribution on Women Education (activists)

Conversely, females exhibit a slightly different sentiment distribution. While the majority still falls under the neutral category at 46.32%, it appears that a significant proportion of females, accounting for 40.00%, express a positive sentiment towards women's education, emphasizing their belief in the importance and benefits of educating women. However, it is noteworthy that a slightly higher percentage of females, at 13.68%, indicate a negative sentiment, implying that some women may have reservations or face challenges regarding women's education. These findings underscore the complexity of opinions and perspectives surrounding women's education, with variations between genders. The table's insights shed light on the diverse attitudes and sentiments towards this crucial aspect of education, emphasizing the need for continued efforts to promote and address the barriers faced by women in their pursuit of education.

Based on the analysis of sentiment distributions in male and female tweets, we observe the following results:

| Gender	T-Statistic	P-Value
Male	13.599393	6.610973e-42
Female	42.011182	0.000000e+00

Table 5: Calculate Sentiment Scores for Entire Dataset (activists)

Table 5 shows the sentiment score for the entire dataset, which we conducted between male and female. Even through this for the entire dataset, but it still compares both male and female. The T-statistic measures the magnitude of the difference between the means of the two groups, while the P-value represents the probability of observing such a difference by chance. In the case of male tweets, the T-statistic of (13.599393) suggests a substantial difference in sentiment compared to a hypothetical mean sentiment of 0. The very low P-value (6.610973e-42) indicates that the probability of obtaining such a difference by random chance is extremely unlikely, providing strong evidence of a significant difference in sentiment. For female tweets, the analysis reveals an even more pronounced difference. The T-statistic of (42.011182) implies a substantial deviation from the hypothetical mean sentiment of 0. Moreover, the P-value of (0.000000e+00) (effectively zero) reinforces the notion that the observed difference is highly significant, leaving virtually no room for chance.

Further we have implemented the same method for our five keywords, which we have earlier described it. Table 6 show the analysis of sentiment in tweets related to education reveals interesting findings when considering the gender of the users. By focusing on men's education tweets, the statistical comparison indicates a substantial difference in sentiment from the neutral standpoint. The computed t-statistic of (12.23) suggests a significant deviation from a neutral sentiment score of 0. This indicates that male's tweets concerning education, encompassing keywords like "women," "education," "school," "university," and "girl," tend to exhibit a distinct sentiment, whether positive or negative. Additionally, the associated p-value of (4.973316e-34) further reinforces the significance of this difference. This implies that male's opinions and attitudes towards education, particularly when related to women, display a pronounced sentiment that differs significantly from neutrality.

Gender	T-Statistic	P-Value
Male	12.231949	4.973316e-34
Female	28.321007	1.696955e-171

Table 6: Calculate Sentiment Scores for Five Keywords (activists)

When we refer to women's tweets, we get a significant departure from neutrality, with a t-statistic of (28.321007) and an incredibly small p-value of (1.696955e-171). This indicates that women's sentiments about education, as expressed in their tweets, differ significantly from neutrality. These findings highlight the distinct perspectives and attitudes of male and female when discussing education. Understanding these divergent sentiments is crucial for addressing gender-specific challenges and promoting inclusivity in educational contexts. In short, the analysis provides strong evidence of gender-related differences in sentiment expression and emphasizes the need for considering gender perspectives in educational discourse.

To get solid result regarding women's education, it's time to only test "women education" keyword, both count as a single keyword.

Gender	T-Statistic	P-Value
Male	2.595307	0.011091
Female	3.432136	0.000892

Table 7: Calculate Sentiment Scores for Women Education (activists)

Uncovering distinct sentiment patterns among male and female. Male's tweets displayed a discernible shift from neutral sentiment, as evidenced by a t-statistic of (2.595307) and a p-value of (0.011091). Meanwhile, female's tweets exhibited an even more pronounced deviation, indicated by a higher t-statistic of (3.432136) and a p-value of (0.000892). These findings underscore the substantial differences in sentiment expressed by male and female when discussing women's education. Recognizing and addressing these divergences can guide targeted approaches and foster inclusivity within educational contexts. Gender serves as a crucial factor in shaping perspectives and emotions surrounding this important topic.

The chi-square test of independence was performed separately for male and female genders. For the male gender, the test yielded a chi-square statistic of 53.38 and an extremely small p-value of 2.57e-12. Similarly, for the female gender, the chi-square statistic was 35.16, with a highly significant p-value of 2.31e-08. These results indicate a strong association between the gender of the users and the presence of tweets related to the five specified keywords. The cross-tabulation of gender and label shows that among females, 21,222 tweets were not related to the keywords, while 13,616 tweets were related. Among males, 10,934 tweets were not related to the keywords, and 6,474 tweets were related. The significant chi-square test results suggest that the occurrence of tweets related to the specified keywords differs significantly between genders. The findings imply that there are notable differences in the engagement and discussion of the specified topics on social media platforms based on gender. Such insights can be valuable for understanding gender-specific perspectives and behaviors related to the given keywords and can aid researchers, policymakers, and educational institutions in tailoring strategies and initiatives accordingly.

Female Activists Top Frequent Words

To discuss the female activists, the most commonly used words reflect the pressing issues and concerns prevailing in Afghanistan. The term "Taliban" takes the lead with a frequency of (13,079), underscoring the significant impact of the Taliban's rule. "Women" follows closely with (11,054) mentions, emphasizing the focus on gender equality and women's rights. Other frequently mentioned words include "Afghanistan" (8,665), "girl" (5,830), "Afghan" (5,339), and "people" (4,002), highlighting the broader context of societal discussions. Additionally, "rights," "school,"

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"Kabul," and "education" feature prominently, shedding light on the key concerns related to human rights and access to education.
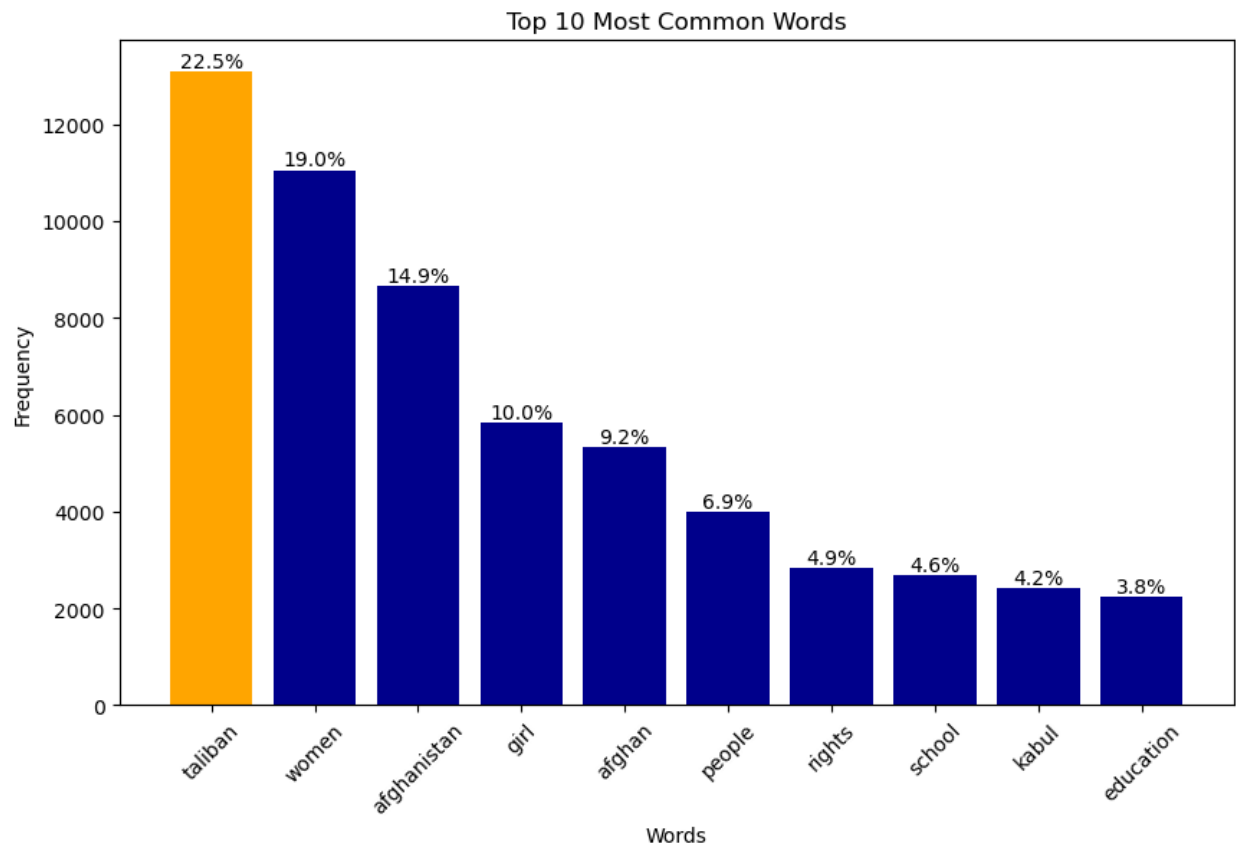
Figure 4: Female Activists Top Frequent Words

In Table 8, we can observe the frequencies of the top 10 words mentioned by female activists. Notably, the word "Taliban" holds the highest count, indicating its significance in their discussions. Following that, we find words like "women," "girl," "rights," and "schools," which align with the focus of our study. It is reassuring to see these keywords present in the dataset, as they reflect the concerns and topics that female activists actively engage with.

Female Activists	Frequency Words
Taliban	13,079
Women	11,054
Afghanistan	8,665
Girl	5,830
Afghan	5,339
People	4,002
Rights	2,843
School	2,694
Kabul	2,417
Education	2,239

Table 8: Frequent Words (female activists)

The word cloud visualization from female activists is displayed in Figure 5. The size of each word represents its frequency of occurrence in their discussions. As depicted, the word "Taliban" appears prominently, indicating its significant presence in their conversations. Additionally, we can see those words such as "women," "girl," "rights," and "schools" hold considerable importance, as they are larger in size, reflecting their frequent usage. This word cloud visualizes the key topics and concerns expressed by female activists in their discussions related to our study.

Figure 5: Female Activists Word-Cloud

To discuss the male activists, several notable terms in examining the word frequencies among male activists. "Taliban" emerges as the most frequent word same as the female activists, but with higher percentages, reflecting its significant presence in their discussions. Alongside that, we find mentions of "Afghanistan," "women," "girl," "Afghan," "education," "school," "Kabul," "Talibans," and "people." These terms collectively indicate the key topics and concerns that male activists actively engage with. It suggests that their conversations revolve around issues related to the Taliban, gender equality, education, and the broader context of Afghanistan. The prominence of these words sheds light on the focal points within the discourse of male activists.
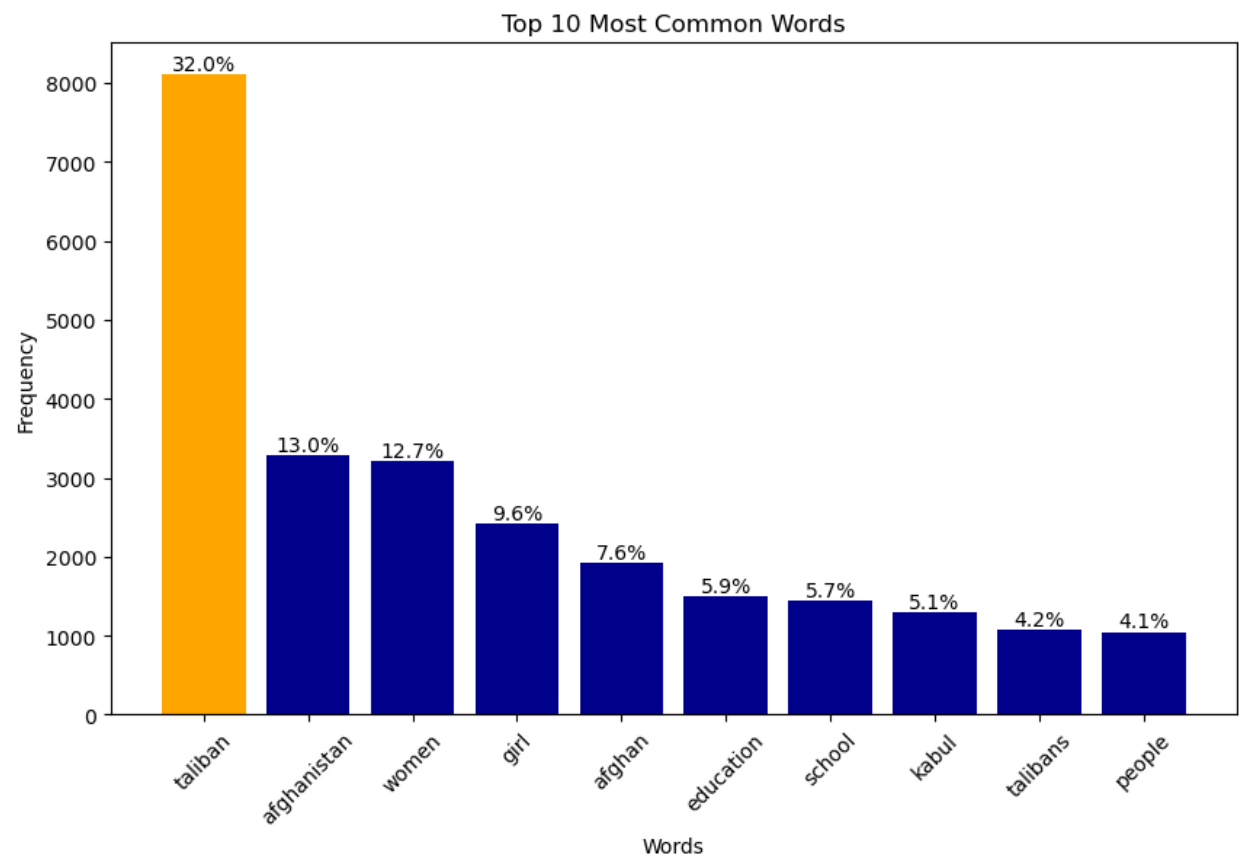
Male Activists Top Frequent Words

Figure 6: Male Activists Top Frequent Words

When we delve into the male activists, it becomes evident that the word "Taliban" takes center stage with a staggering frequency of (8099). This sheds light on a significant focus on addressing the actions and impact of the Taliban. Alongside this, other notable terms such as "Afghanistan" (3287), "women" (3218), "girl" (2422), and "education" (1495) emerge, revealing a strong commitment to championing gender equality and ensuring access to education. Additionally, the presence of words like "Afghan," "school," "Kabul," "Talibans," and "people" indicates the diverse range of topics that male activists engage with and advocate for.

Male Activists	Frequency Words
Taliban	8099
Afghanistan	3287
Women	3218
Girl	2422
Afghan	1915
Education	1495
School	1444
Kabul	1291
Talibans	1072
People	1047

Table 9: Frequent Words (Male activists)

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Also, the word cloud visualization from male activists shows a significant focus on "Taliban" followed by "Women," "Afghanistan," "school," and "university," This reflects a concern for gender equality and access to education.
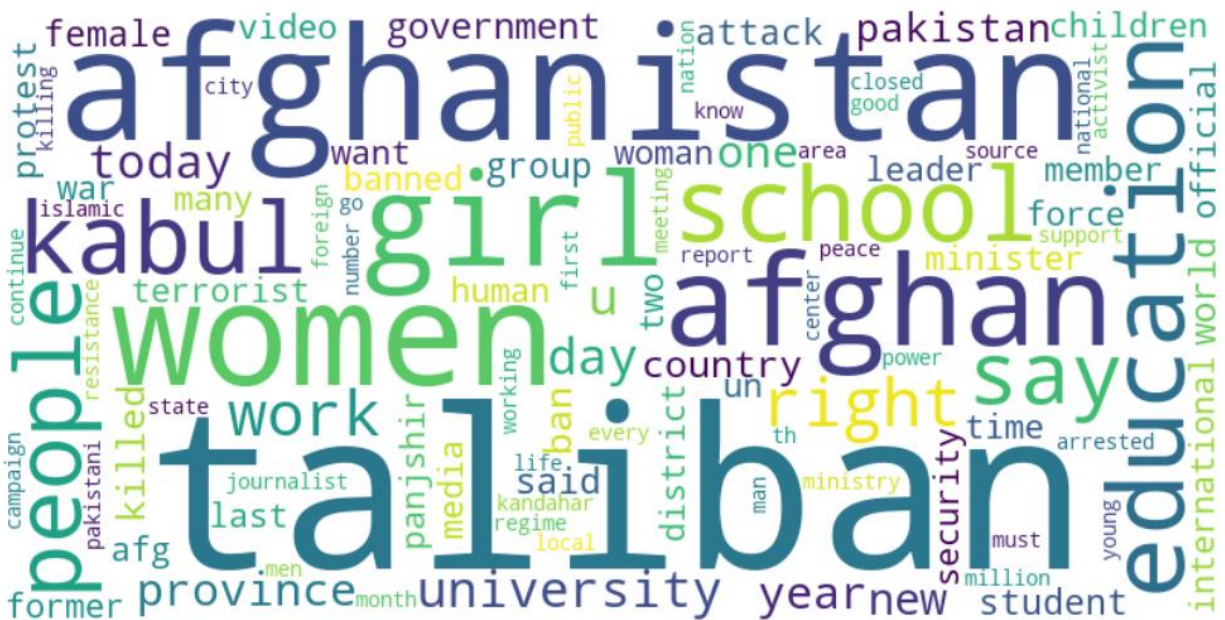

Figure 7: Male Activists Word-Cloud

In our study, we used logistic regression to examine the relationship between gender and support for women's education. We treated gender as our independent variable (IV), where we assigned the value 1 to represent male and 0 to represent female. We began by merging the data of male and female activists using automated methods, ensuring a purely computational approach throughout. The logistic regression analysis yielded interesting findings regarding the association between gender and women's education. Notably, the coefficient assigned to the "sex" variable indicated that females demonstrate a stronger inclination towards supporting women's education compared to males. This discovery highlights the vital role played by female activists in advocating for and advancing women's education. It emphasizes the importance of addressing gender disparities in educational access and underscores the need for empowering women through educational opportunities. The findings from this study shed light on the valuable contributions of female activists in promoting women's education and serve as a call to action for fostering equal educational opportunities for all individuals.

Optimization terminated successfully.
        Current function value: 0.666075
        Iterations 4
                Logit Regression Results
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Dep. Variable: label No. Observations: 51916
Model: Logit Df Residuals: 51914
Method: MLE   Df Model: 1
Date: Fri, 19 May 2023 Pseudo R-squ.:   0.0002553
Time: 00:26:46   Log-Likelihood: -34580.
converged: True LL-Null: -34589.
Covariance Type: nonrobust LLR p-value: 2.638e-05
===
                 coef   std err   z   P>|z| [0.025   0.975]
----
const   -0.4439   0.011   -40.423   0.000   -0.465   -0.422
sex   -0.0809   0.019   -4.198   0.000   -0.119   -0.043
===

Women's Education: From an Activist, Taliban and Ordinary People Perceptions

This section consists of activists both male and female, Taliban officials is only male, there is no female in the cabinet of the Taliban, and also, ordinary people, which are Afghan people does not involve in politics. Except the Taliban the other two groups both consists of male and female, but our focus is not on the gender, instead we analyze them in a group, based on their background, like "activist, people, and Taliban". At first, we would have a look at their tweets in group, then we move forward and analyze them in dept, using keywords, "education", "school", "university", "women", "girl", and "women education". These keywords narrow down the dataset and analyze only those tweets which related to these certain words. This section is solely for activists, ordinary people and Taliban, in the rest of the section instead of (ordinary people) we use only people which is equivalent to (ordinary people) in this study. Taliban has a total of tweets (75,971) followed the people which is (57,689), and activists (52,247), Taliban has the largest total of tweets which shows how the Taliban active on Twitter platform, even though we have the same sample for each group. Further, figure 8 shows, a sentiment distribution among their tweets, according to the figure, Taliban has the dominant positive tweets and smallest neutral as well, the smallest negative tweets.
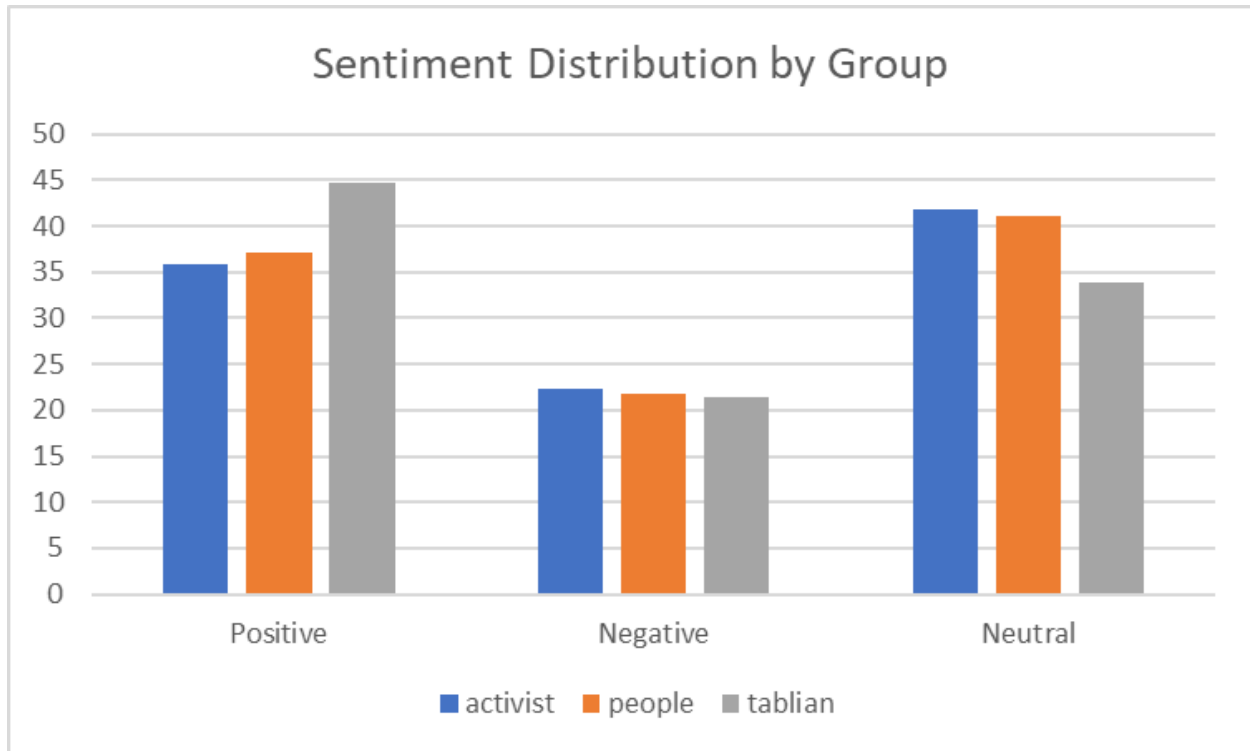
Figure 8:Sentiment Distribution of (activists, taliban, people)

Table 9 shows, the exact percentage of each group, activists and people has the same value on neutral side, while Taliban's are seeming toe be more positive. Table 9, and figure 8 are the same exact result but different approaches, one in chart format, while other in a table.

Group	Positive	Negative	Neutral
Activist	35.894522%	22.282148%	41.823330%
People	37.163793%	21.721719%	41.114488%
Tablian	44.766355%	21.329472%	33.904173%

Table 10: Sentiment Distribution of (activists, taliban, people)

Unclean	Clean
Respected Maulvi Abdul Kabir said: Now compared to the past, good conditions have been provided for the return of migrants and aid is provided to them in a transparent manner, and we assure that the rights of migrants and returnees and the human rights of all Afghan people are protected. 3/4	respected maulvi abdul kabir also said islamic emirate want deprive women education allow go homes mentioned examples women girls actually engaged business education work offices hospitals
As the majority of the people of Afghanistan are Muslims, the Afghan government considers the observance of the Islamic hijab in accordance with the religious and cultural values of the Afghan society and in accordance with the ideals of the majority of Afghan women, and emphasizes that nothing against the religious and cultural belief of the Islamic society has been imposed on Afghans. . 4/6	majority people afghanistan muslims afghan government considers observance islamic hijab accordance religious cultural values afghan society accordance ideals majority afghan women emphasizes nothing religious cultural belief islamic society imposed afghans
If Europe is working for women's rights in Afghanistan, but it is a slave, then in a religious and conservative society like ours, who can claim destruction rather than work to secure women's rights? Europe should not look at the Afghan society/women from the perspective of its own values.	europe working womens rights afghanistan slave religious conservative society like claim destruction rather work secure womens rights europe look afghan society women perspective values
These are female protesters harassing security forces who are protecting them. This shows the tolerance good behavior of IEA soldiers but no one will show this picture,no western journalist will tweet this. IEA will always protect the women their rights in Afghanistan. #Peace https://t.co/UJ561d2SEQ	female protesters harassing security forces protecting shows tolerance good behavior iea soldiers one show pictureno western journalist tweet iea always protect women rights afghanistan peace
Head of the Ministry of Higher Education: University doors are closed to women for four reasons. 1_ The existence of women's dormitories 2_ They come from one province to another province without mahram 3_ Students do not observe hijab 4_ And male and female students continue to live together. https://t.co/C2Nub9QmHr	head ministry higher education university doors closed women four reasons existence womens dormitories come one province another province without mahram students observe hijab male female students continue live together
On the basis of the decree of His Highness Amirul Momineen Hufzaullah, former governor of Kabul Province, Sheikh Nada Mohammad Nadeem was appointed as the head of the Ministry of Higher Education. On the basis of the order of the Supreme Commander of the Faithful, the former governor of Kabul, Sheikh Nada Mohammad Nadeem, was appointed as the Acting Minister of Higher Education. https://t.co/BHBGAMOTHh	basis decree highness amirul momineen hufzaullah former governor kabul province sheikh nada mohammad nadeem appointed head ministry higher education basis order supreme commander faithful former governor kabul sheikh nada mohammad nadeem appointed acting minister higher education

Table 11: Tweet (Taliban officials)

Table 10 shows tweets from the Taliban, while Table 1 belongs to the activists; there is an apparent lack of women's education support in the Taliban tweets. At the same time, activists have more tweets regarding women's education and their support. Even female activists ask people to stand with education and support females in Afghanistan. Activists are more supportive of education and have frequent tweets related to women's education.

In our analysis of tweets related to the keywords "women," "education," "school," "university," and "girl," we aimed to gain insights into the level of support for women's education in Afghanistan. However, it is important to note that the sentiment distribution for the Taliban was unavailable in the provided data, as all values were NaN (0). Meanwhile, our analysis primarily focuses on the sentiments of activists and the general public, including the Taliban, but for Taliban received NaN (0).
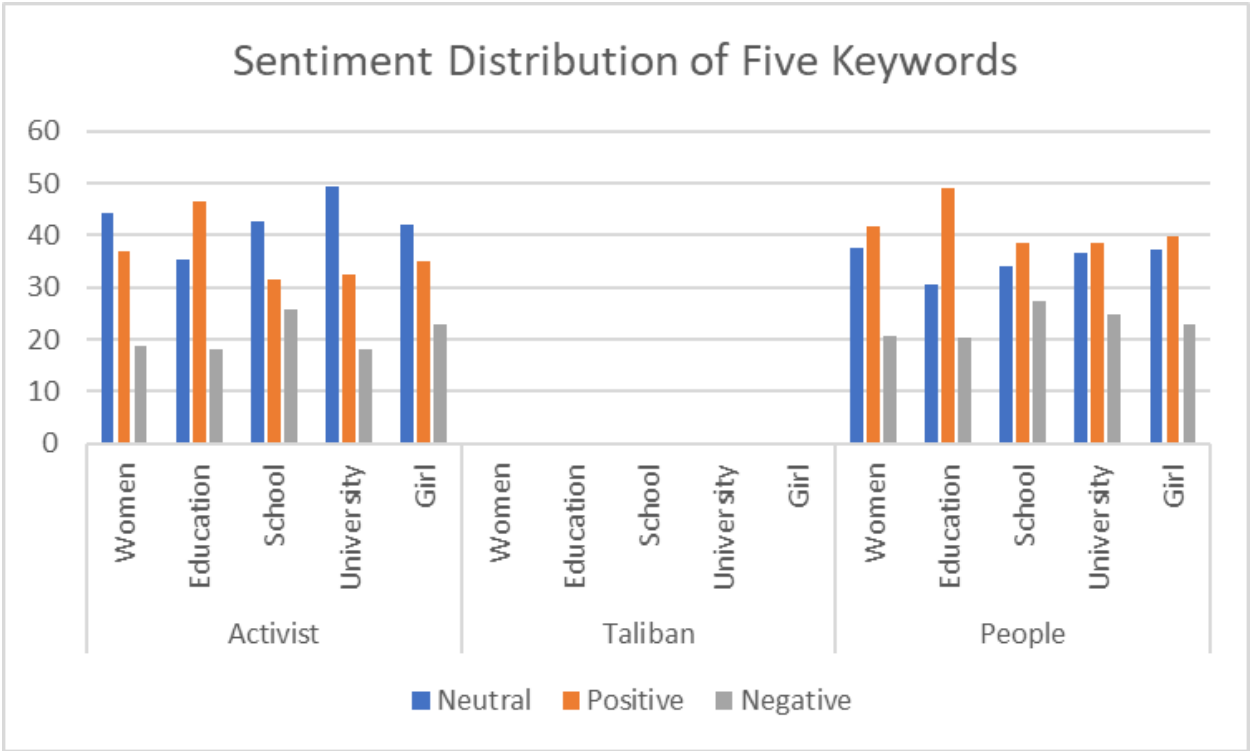

Figure 9: Sentiment Distribution of five Keywords (activists, taliban, people)

When examining the sentiment distribution among activists, we observed varying opinions on the issue of women's education. For the keyword "women," the sentiment distribution showed diverse views. Approximately 44.42% of the tweets expressed a neutral sentiment, indicating a lack of clear stance or mixed opinions. On the positive side, 36.91% of the tweets supported women's issues, emphasizing the importance of education and empowerment. However, it is worth noting that around 18.68% of the tweets reflected a negative sentiment and expressed reservations or opposition towards women's education.

Moving on to the keyword "education," we found that among activists, 35.43% of the tweets had a positive sentiment, highlighting the value and significance of education for women. Conversely, 18.16% of the tweets expressed a negative sentiment, suggesting concerns or objections regarding women's access to education. Notably, 46.41% of the tweets remained neutral, indicating a lack of strong sentiment or a balanced perspective among activists. Regarding the keyword "school," the sentiment distribution showed a similar pattern. Activists expressed a mix of sentiments, with 42.67% of the tweets being neutral, 31.53% positive, and 25.80% negative. This suggests that while a significant proportion of activists support the idea of women attending school, there are also concerns or criticisms expressed by a notable portion of the community.

For the keyword "university," the sentiment distribution among activists revealed that 49.43% of the tweets had a neutral sentiment, indicating a lack of a clear stance. However, 32.52% of the tweets were positive, demonstrating support for women pursuing education. Around 18.04% of the tweets displayed a negative sentiment, reflecting reservations or objections towards women's participation in university education. Lastly, focusing on the keyword "girl," the sentiment distribution among activists showcased a similar trend to the previous keywords. Approximately 42.06% of the tweets had a neutral sentiment, while 35.13% expressed a positive sentiment, emphasizing the significance of supporting girls' education. Around 22.81% of the tweets displayed a negative sentiment, indicating concerns or criticisms about girls' education access.

However, it is crucial to acknowledge the absence of sentiment data for the Taliban in our analysis, which limits our ability to assess their stance on women's education. It would be valuable to obtain sentiment data from the Taliban's perspective to understand the different groups' viewpoints comprehensively. In the sentiment distribution among people, we find that for the keywords of women, education, school, university, and girl, the sentiment percentages vary. When it comes to women, approximately 37.72% of the people express a positive sentiment, while around 20.70% hold a negative sentiment, and the remaining 41.59% maintain a neutral stance. Regarding education, about 30.45% of people express positivity, 20.39% hold a negative sentiment, and 49.16% maintain a neutral viewpoint. Similarly, sentiments related to school, university, and girl show variations in the percentages of positive, negative, and neutral sentiments among the people.

Activist						Taliban					People				
Sentiment	Women	Education	School	University	Girl	Women	Education	School	University	Girl	Women	Education	School	University	Girl
Neutral	44.42	35.43	42.67	49.43	42.06	Nan	Nan	Nan	Nan	Nan	37.72	30.45	34.17	36.69	37.20
Positive	36.91	46.41	31.53	32.52	35.13	Nan	Nan	Nan	Nan	Nan	41.59	49.16	38.45	38.59	39.75
Negative	18.68	18.16	25.80	18.04	22.81	Nan	Nan	Nan	Nan	Nan	20.70	20.39	27.37	24.72	23.05

Table 12: Sentiment Analysis of Tweets Containing the Keyword (activists, taliban, people)

In Table 13, we can observe the percentage breakdown of each keyword, highlighting an unfortunate absence of data for the Taliban group. There are a couple of potential explanations for this absence. It could be that the Taliban either refrains from tweeting about these specific keywords or their involvement in discussions related to women, education, school, university, and girl is minimal, resulting in negligible representation in the collected data. This underscores the significance of the data obtained from the other two groups, providing valuable insights into their perspectives.

Unclean	Clean
2,777 jobs have been allocated for women in the educational sector, today announced by the Ministry of Education, out of 7,000 jobs for teachers and administrative staff (male and female), in the states: Herat, Farah, Ghor, Badghis, Nangarhar, Laghman, Kunar and Nuristan.	jobs allocated women educational sector today announced ministry education jobs teachers administrative staff male female states herat farah ghor badghis nangarhar laghman kunar nuristan
After many years in Uzbekistan, hijab was allowed for women in educational institutions!	many years uzbekistan hijab allowed women educational institutions
181 public and private universities throughout the country are open to men and women, and the education process has been extended to 70 percent of the remaining parts of the country. Thousands of women in education, higher education, public health, ID and passport offices, airports, police, media, 3/11	public private universities throughout country open men women education process extended percent remaining parts country thousands women education higher education public health id passport offices airports police media

Table 13: Tweets Related to five Keywords (activists, taliban, people)

Among the tweets we analyzed from the activists and people groups, we have curated a collection of the most suitable tweets corresponding to our chosen keywords. It is worth mentioning that a significant proportion of their tweets predominantly discuss subjects like Islam and the official visits of their representatives to foreign countries, which may not directly relate to our specific investigation on women's education. Nonetheless, we have diligently selected tweets that closely align with our research topic, ensuring their relevance and significance.

To narrow down our data and focus on keyword "women education" only, we found a number of noteworthy patterns emerge. We first put our attention to the Taliban group, unfortunately, the sentiment distribution data is not available NaN (0). This lack of information hinders our understanding of the Taliban's stance on women's education specifically. It could imply that they do not engage in discussions or tweets about women's education, or their stance is not reflected in the dataset. Again, you can take table 14, the best tweet related to education on their dataset.
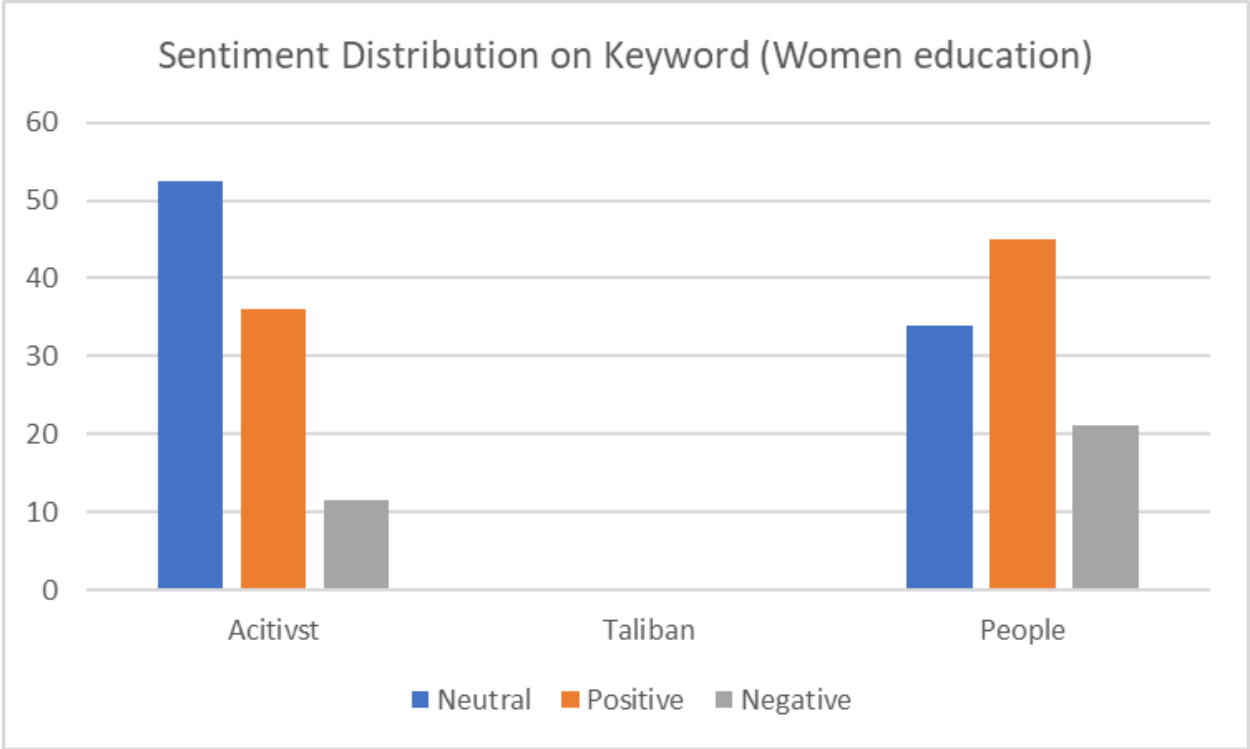

Figure 10:Sentiment Distribution on Women Education (activists, taliban, people)

Considering the sentiment distribution among people, it is evident that a significant proportion of tweets, 33.94%, express a neutral sentiment. This suggests diverse opinions and perspectives among the general public regarding women's education. On the positive side, 44.95% demonstrate a supportive sentiment towards women's education, indicating a widespread belief in the importance of empowering women through educational opportunities. Conversely, 21.1% of the tweets are negative, highlighting concerns or reservations people may have regarding various aspects of women's education.

Women education	Activist	Taliban	People
Neutral	52.46%	NaN	33.94%
Positive	36.07%	NaN	44.95%
Negative	11.48%	NaN	21.10%

Table 14: Sentiment Distribution on Women Education (activists, taliban, people)

Based on the analysis of the sentiment distribution on the specific keyword "women education," activists show a mixed sentiment with a notable emphasis on support and advocacy. However, the lack of available data on the Taliban group limits our understanding of their stance. The general population's sentiment distribution reveals diverse opinions, with a significant portion expressing support for women's education while acknowledging some negative sentiments. These findings shed light on the complexities and varying perspectives surrounding women's education within different groups, underscoring the need for further exploration and dialogue on this crucial topic.
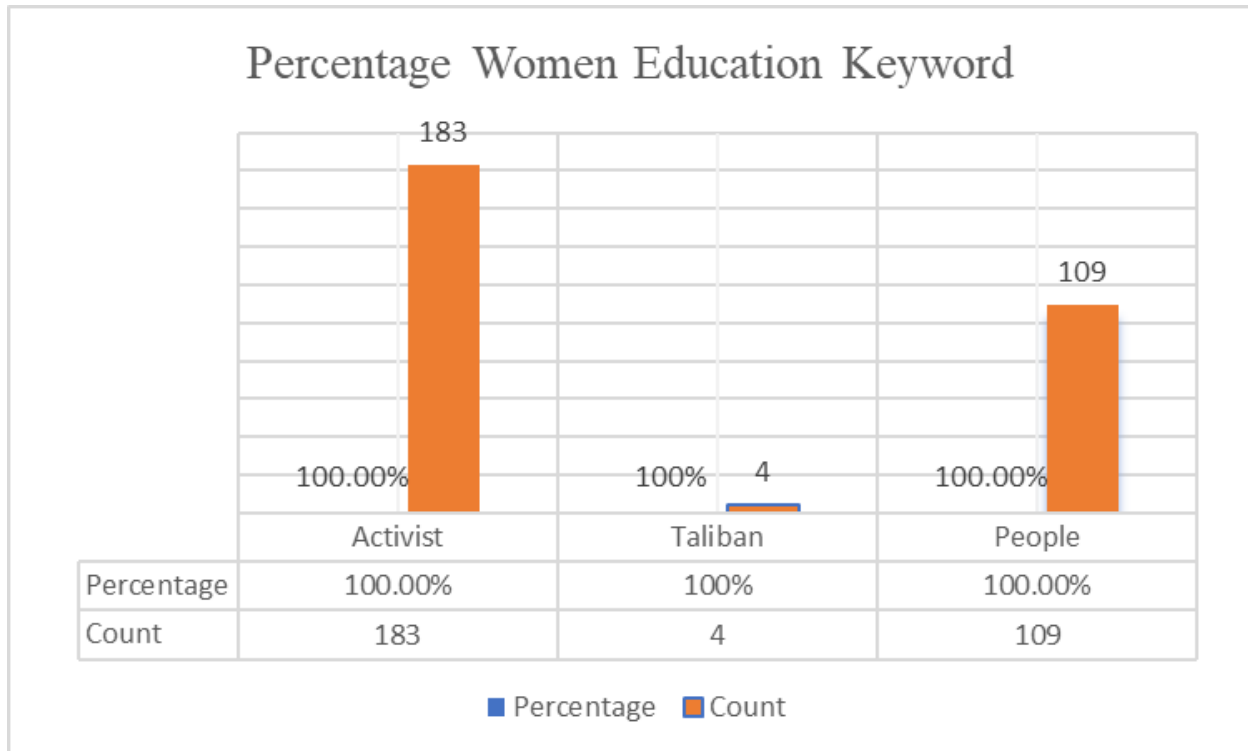
27

Figure 11: Percentage Women Education Keyword (activists, taliban, people)

In addition to recover Table 13, we conducted a more detailed investigation focusing on the keyword "women education." Our findings revealed that only four tweets mentioned "women education." The percentage for this keyword does not appear in Table 14 because either these tweets did not express a positive sentiment or the sample size was too small to calculate a meaningful percentage. These findings are based on our analysis compared to the other two groups.

Group	Percentage	Count
Activist	100.00%	183
Taliban	100.00%	4
People	100.00%	109

Table 15:Percentage and Count on Women Education (activists, taliban, people)

Based on Table 14, we found that people generally have a more positive sentiment toward "women's education." However, activists tend to express their support for women's education more passionately, resulting in a lower positive sentiment but a higher number of related tweets compared to the general population, table 15 shows, activists has tweeted (183) related to "women education," followed by people (109) and Taliban which is (4).

Analyzing the Frequency of Keywords Regarding Women's Education

The figure 12 provides valuable insights regarding our keywords, namely "women," "education," "school," "university," and "girl." It illustrates the frequency of these keywords' usage by different groups over the course of each year. Based on the figure, we can observe that activists have consistently used these keywords more frequently in their tweets, particularly between October 2022 and January 2023. These findings suggest that the activist group has shown higher engagement and emphasis on these topics during those specific time frames.
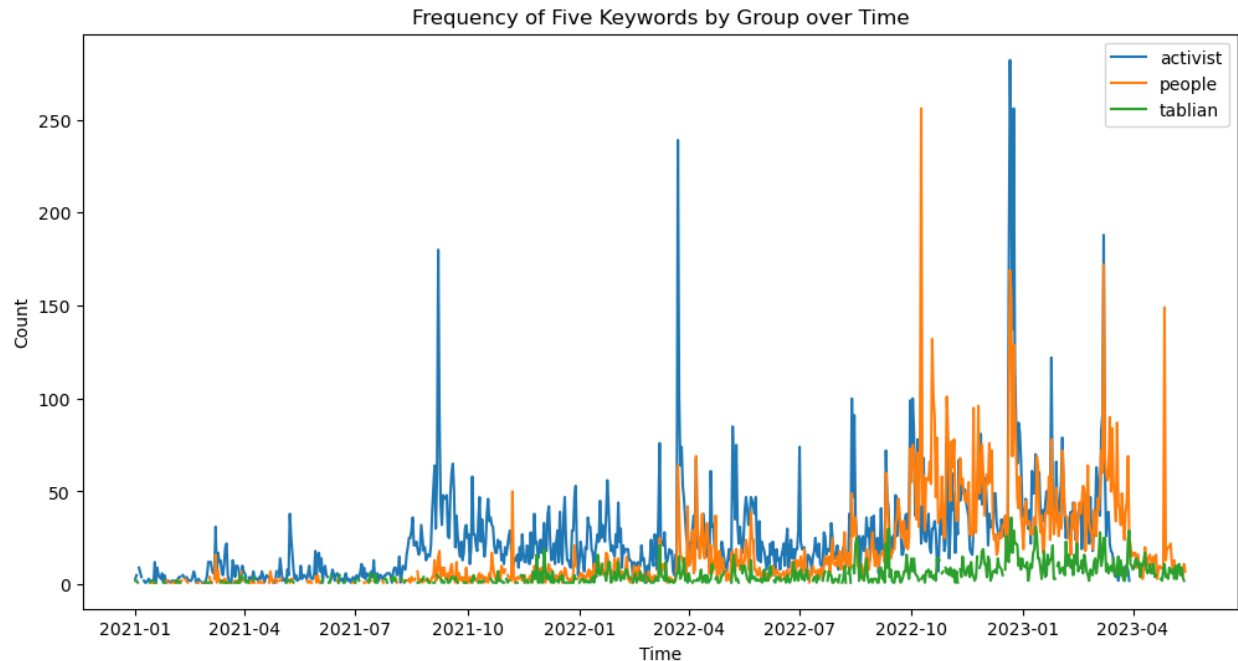
28

Figure 12: Frequency of Five Keywords by Group over Time (activists, taliban, people)

Additionally, the analysis reveals that the people has noticeably utilized the mentioned keywords. This indicates that people are actively engaged in discussions related to education and express support for women's rights and equality in education. On the other hand, the Taliban has exhibited a considerably lower frequency of tweets containing these keywords. This suggests that the Taliban group may not prioritize or demonstrate concern for women's education based on their limited usage of these keywords.

Last but not least, the results of the statistical test reveal a significant relationship between the groups and the label values. The chi-square statistic, which measures the discrepancy between the observed and expected frequencies, has a high value of (26655.35). This indicates a substantial difference between the groups regarding their support or opposition towards women's education. The p-value, which assesses the statistical significance, is extremely low at (0.0). This suggests that the likelihood of observing such a large discrepancy between the groups by chance alone is negligible. Therefore, we can conclude that there is a significant association between the groups and their stance on women's education, indicating varying levels of support or opposition across the different groups.

Taliban Top Frequent Words

The Taliban's most frequently used terms reveal their point of view. Words like "Afghanistan," "people," and "Islamic" reveal their connection with the region, their religion, and their political leanings, respectively. They appear to be leading towards an Islamic state, as terms like "minister," "country," and "emirate" all point that way. The words "ministry," "god," "said," and "foreign" all allude to their diplomatic and theological concerns. These reoccurring expressions shed light on the Taliban's overarching goals and ideas.
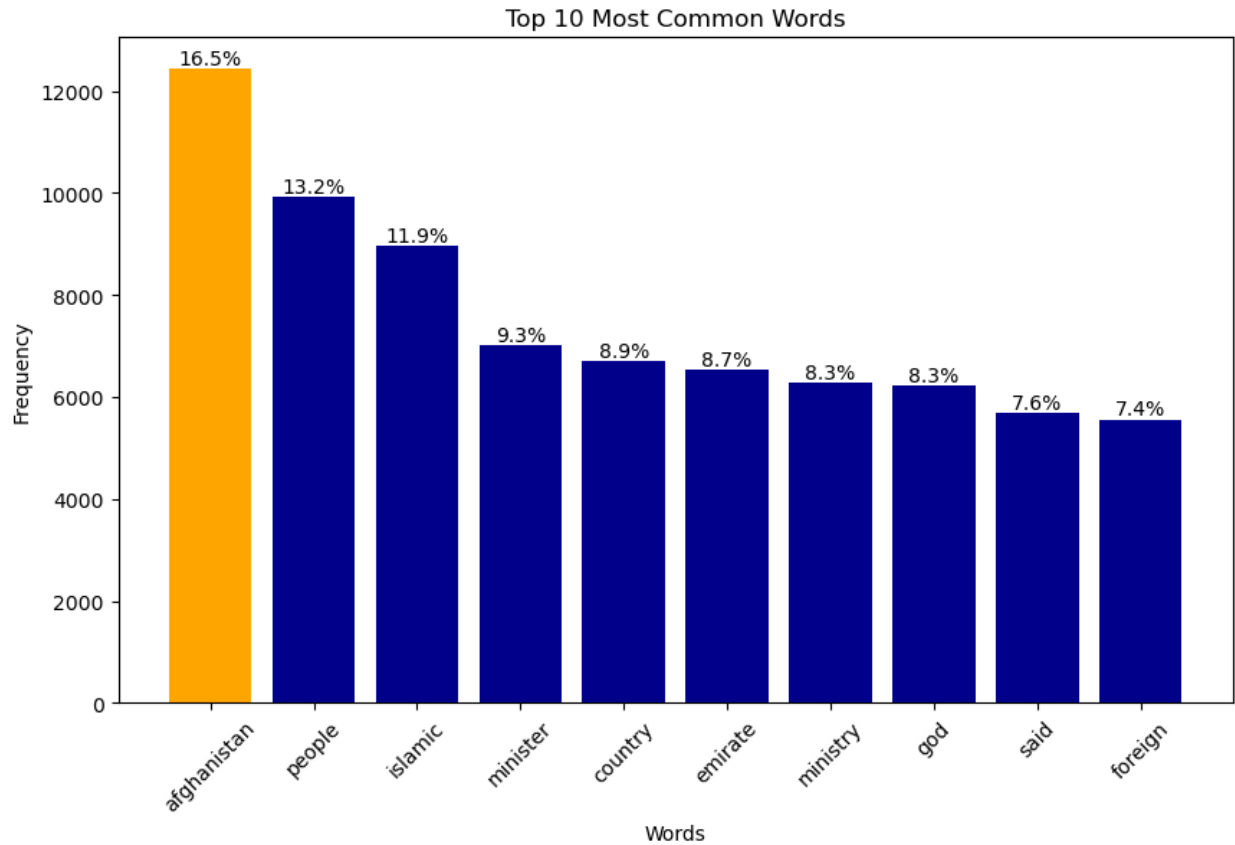
29

Figure 13: Taliban Top Frequent Words

The word cloud for the Taliban reveals key themes and priorities. It prominently includes words such as "Afghanistan," "people," and "Islamic," highlighting their close association with the country and their religious ideology. Terms like "minister," "country," and "emirate" suggest their involvement in governance and their pursuit of an Islamic state. This word cloud offers a concise glimpse into the Taliban's central focus and core values.

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Figure 14: Taliban Word-Cloud

Female Ordinary People Top Frequent Words

Ordinary women's top 10 words represent their worries and activism. "Hazara," "genocide," and "stop" show their awareness and activism. "Afghanistan," "women," and "people" demonstrate their national identity. "Taliban" shows their resistance to the gang, while "girl" underlines their empowerment of young women. These remarks reveal the social and political priorities of regular women.
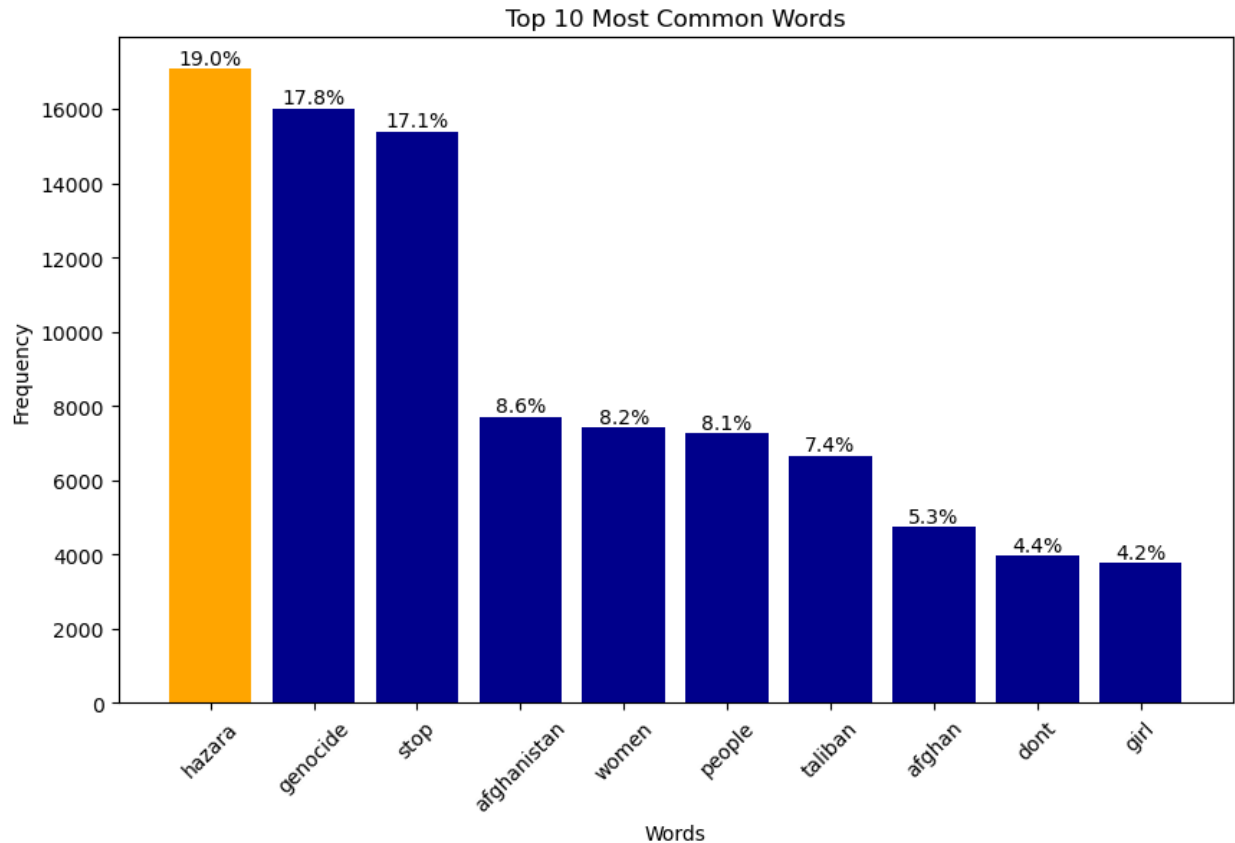
Figure 15: Female Ordinary People Top Frequent Words

Female ordinary people, word cloud expresses their concerns. "Hazara," "genocide," and "stop" represent their fight against injustice, while "Afghanistan," "women," and "people" represent their nation and shared sufferings. "Taliban" emphasizes their resistance to the gang, while "girl" emphasizes their empowerment of young women. This word cloud powerfully conveys this group's concerns and activism.

Figure 16: Female Ordinary Word-Cloud

Male Ordinary People Top Frequent Words

Male ordinary people, word cloud expresses their concerns, about Afghanistan and the Taliban. "Afghanistan," "Taliban," and "people" show their focus on the country's predicament and its impact on Afghans. "Hazara," "genocide," and "Pakistan" indicate their grasp of regional affairs. "Stop," "country," and "one" emphasize their patriotism, action, and individuality. The word cloud the most pressing issues and areas of interest, including Afghanistan, the Taliban, and the Hazara people. This shows that they care about ending genocide, Pakistan, and violence. The cloud symbolizes the people's love of their homeland along with their dedication to maintaining tranquility there.

Figure 17: Male Ordinary Word-Cloud

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In conclusion, our analysis of tweets related to women's education highlights notable gender disparities among advocates. Male activists tend to maintain a neutral emotional stance, while female activists exhibit a more positive inclination. These findings suggest that gender dynamics and varying priorities may contribute to the divergent levels of support and advocacy for women's education observed among these activist groups. Furthermore, our analysis reveals that there is no statistically significant difference between the sentiment expressed in Taliban tweets and the sentiment associated with women's education. This suggests that the sentiment towards women's education within the Taliban's tweets aligns with their overall emotional tone. These insights emphasize the importance of understanding gender dynamics and recognizing the role they play in shaping attitudes and support for women's education initiatives.

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