



# Social Network Analysis of Indonesian Twitter Users' Behavior Regarding Medical Treatment Abroad

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**Abstract:** Currently, the issue of some Indonesian people deciding to seek treatment abroad is being hotly discussed on social media. This study uses secondary data from Twitter.com with Social Network Analysis (SNA) which focuses on the relationship between the use of graphic theory which can be illustrated through presentations on a network to describe the perceptions of Indonesian Twitter users on the behavior of medical treatment abroad. The findings reveal that 37.39% of Twitter users reported reasons for going abroad for medical treatment while traveling, 23.48% for seeking a second opinion, 19.13% for the service system, 11.30% for doctors, 4.35% for access to information, 3.48% for reasons of privacy, and 0.87% due to trust issues.

**Keywords:** medical treatment abroad, social network analysis, twitter.

## 1. Introduction

Patients from Indonesia may decide to receive treatment overseas for a variety of reasons. Some individuals go for medical care because they believe the cost of care is lower abroad. Patients from Indonesia may also travel abroad to receive surgeries or treatments that are not offered there. The Indonesian government categorically prohibits this circumstance since some people's choice to receive medical care abroad has a direct financial impact on them. According to estimates, actions made by Indonesian nationals to receive medical care overseas cost the country IDR 97 trillion annually. The number of people seeking treatment overseas continues to be reduced by a number of relevant parties, including by enhancing the infrastructure and standard of healthcare services. However, some people continue to advocate for receiving medical care abroad [1].

With the development of social media and other communication channels, particularly with the advent of information technology, which is backed by the internet, opinions on the pros and negatives of the habit of seeking medical care overseas are evolving. It's no longer difficult to access information, organize it, or even send messages to the communicant. Because communicators and communicants can interact at any time and from any location, the internet has made people feel as though they are no longer constrained by the constraints of space and time. People can now easily "speak out loud" with their fingertips, expressing their ideas to a larger audience than they previously found difficult [2].

The process of shaping public opinion is inextricably linked to the existence of users

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of social media networks, or "netizens," who are more commonly referred to as users. Twitter is one of the most widely used platforms today for expressing ambitions. It has a simple interface with a blue bird emblem and continuously tweets user comments. With the hashtag menu (#), which groups opinions based on pertinent themes, Twitter is able to support a variety of opinion polling interests. The usage of hashtags on the social media platform Twitter has allowed users to express a variety of viewpoints and vote in polls, allowing them to consistently rank among the top topics, or better known as trending topics in Indonesia and throughout the world [2].

The fact that Twitter exists as a social media platform where thoughts, ideas, opinions, and others may be expressed makes it the ideal platform for those who wish to share their viewpoints about a problem or phenomenon that is currently occurring in society. Of course, the public is still aware of the subject of receiving medical care abroad. In fact, it has become a popular topic of discussion among Indonesians in recent years. Regarding this matter, a range of perspectives—from favorable to unfavorable, proactive to contradictory—emerged. As a result, it is anticipated that the analysis of public opinion groups on the subject of receiving medical treatment overseas on the social media site Twitter will serve as an example of how the Indonesian people perceive online [3].

The Twitter application is the ideal spot to see the state of netizens' perceptions as a whole on social media, including public personalities like presidents. Twitter is one of the top 3 social media applications that are in high demand. Joko Widodo made reference to the two million Indonesians who travel abroad for medical care each year via his Twitter account (Pinandhita, 2023). This claim sparked discussion on numerous social media platforms and received support and criticism in different circles. Based on this, it is vital to describe Indonesian Twitter users' impressions of how people behave when receiving medical care overseas using social network analysis.

## **2. Literature Study**

### **2.1. Social Network Analysis**

One of the well-liked techniques is social network analysis (SNA), which is used to pinpoint individuals or organizations that are key players in the network. SNA has the ability to uncover data that is concealed in intricate networks. A social network is a social structure made up of a number of social players, such as people or organizations, and a web of connections among them. A method for examining the structure of social entities as a whole is offered by the social network perspective, together with a theory that explains the patterns seen in this structure [4].

Social network analysis is a tool for analyzing the structure of social relations within a group. SNA uncovers patterns, maps relationships between individuals, and simultaneously visualizes relationships between actors. SNA can also be used in spreading the latest issues or trends [5].

There are three types of elements in SNA: groups, which are groups of actors in an organization with a size ranging from 25 to 200 people; interaction, which is a pattern of relationships or interactions between actors in an organization or community; and attributes, which are the completeness/features possessed by actors and include things like age, gender, and position [5].

Social network analysis has garnered a lot of interest since it was originally introduced. Social network analysis is used by social networking sites like Facebook to find and suggest friends. Social network analysis is a tool that brands use to find influencers and material that is more valuable to their target audience. Some of the benefits of using Social Network Analysis include; a) know trends and patterns, b) evaluate the hypothesis. Social network analysis can be used to evaluate theories about how people behave online and to identify the root causes of dysfunctional and knowledge-based growth in online communities, c) Determining the brains behind a subject; social network analysis can reveal which influencers have sway over a subject. For instance, there is a tweet on the social network Twitter that will have different user roles. Some individuals merely retweet, while others comment on posts. From here, one may determine who has the most sway in a given discussion [6].

## **2.2. Twitter User**

A rising social trend is the usage of social media applications on the internet as a platform for communication and information exchange. With the use of information technology, it is now possible to spread information fast and widely without actually meeting someone. Social media's availability enables people to interact more easily and fast for less money. Applications on the internet that are part of social media platforms like Facebook, Twitter, Instagram, LinkedIn, and others provide a variety of benefits and features that draw in their users [7].

The term "netizen" refers to anyone who supports the public and works with the internet to help, maintain, and preserve the internet itself. It does not only refer to internet users. Literally speaking, netizens are internet users, but if they support the general public and use the internet for the benefit of the online community as a whole, then that is the true meaning of the term. Netizens are people who are citizens/societies/dwellers of cyberspace who are Virtual and have no boundaries in communicating [8].

Twitter is a social media platform for communication services. The major feature that sets it apart from other social media platforms is the character count cap for each post or tweet. Twitter users can connect with other users by sending direct messages or general replies, following them, and viewing their tweet updates. If the account owner follows (follows) the account of interest, information from other users will be gathered. On the timeline page of the account owner, tweets from other users will show up. Users can reply to tweets by typing a "@" symbol before the account name or by retweeting messages they find and find interesting. There are a number of widely used terms on Twitter, including:

- a. Timeline is a list of recent tweets from users on Twitter who the account owner is following, as well as tweets the account owner has sent.
- b. Direct Message (DM) is a feature that allows users to communicate in a more private way. Only parties who are followed (following) are permitted to engage in DM.
- c. Collection of subjects that are often discussed on Twitter is known as a "trending topics" list.
- d. Tweets are informational messages made up of a number of characters that include the most recent information on the topics in which the account owner is interested.
- e. Comment or reply to a tweet is known as a reply tweet (RT).
- f. Retweeting involves copying an entire tweet from another account.
- g. Follow involves following user-submitted accounts and data.
- h. People who follow someone's account are considered to be their followers.
- i. Mention (@) is used to indicate the username of the recipient of the message. This symbol should be used at the start, before the desired party's username. Hash symbols (#) are used to indicate keywords for shared content or discussion topics so that people may quickly find them. [9].

### 2.3. Features of Indonesian Internet users

The way Indonesian internet users react to breaking news generally draws a lot of attention; they frequently act in ways that are inconsistent with how they would act in real life, which may be a result of the fact that they are unable to express their opinions in that setting due to restrictions on their freedom and the difficulty of doing so. They express their emotions on social media, which impairs their ability to control themselves and causes them to act inappropriately or beyond the pale. This occurs not only as a result of the restricted opportunities for expression in the real world, but also as a result of FOMO, or fear of missing out, which can be understood as the dread of losing out on news, leading people to overreact and overshare. They may seek attention on social media in one form or another because they feel ignored by their surroundings. This may cause an out-of-the-box reaction to news to be overstated. They frequently go "wild" because they assume that utilizing social media will allow them more freedom to "scream" than real life does. The majority of Indonesian internet users continue to assume that social media is a place for entertainment where they can act anyway they want without being criticized. When they are confronted, their behavior will change dramatically; they will surely pause and reconsider their acts. [10].

Psychologically, the behavior of Indonesian netizens is influenced by many factors, depending on each individual, but the majority behave based on upbringing patterns from their surrounding environment. The age factor also influences the older they tend to be more patterned while their teens tend to be more expressive, behave wilder, and more passionate in social media. There is also the personal experience component; often, personal experience influences how internet users behave on social media. For instance, when someone experiences being mocked or denigrated, they often model

this behavior inwardly or even worse, acting outwardly toward others. Individual behavior is also determined by the situation. When using social media, individual behavior will be influenced by the situation they were in at the time. For example, when in a bad mood, one's behavior will be more easily controlled and will also be more influenced by one's thoughts. Conversely, when in a happy mood, one's behavior will be more relaxed and more patterned by thinking [10].

Long regarded as the nation with the most active Twitter population is Indonesia. This is demonstrated by Jakarta, one of the world's Twitter capitals, whose daily tweet volume is among the highest. In Indonesia, a large portion of Twitter users utilize the platform to complain to businesses.

For instance, Twitter is frequently used by telecom accounts to address customer complaints. Another trait is that Indonesian Twitter users frequently report events to the appropriate agencies [11].

#### **2.4. Twitter Users' Perspectives on a Social Issue**

The real traits of Indonesian society are that it is difficult for them to establish a healthy democracy and that they constantly push their viewpoint on individuals or groups who hold opposing views. This ailment is thought to be the primary reason why individuals believe bogus news on social media so readily. The Ministry of Communication and Informatics (KOMINFO) is reminding the people to always be cautious and be more selective in choosing news by being skeptical and critical of reading information due to the rampant spread of hoaxes. The first step is to always be on the lookout for exaggerated and inflammatory news titles. After that, attempt to obtain official news from dependable sources with factual themes. Then, confirm if the news is founded on accurate information and viewpoints. You can use a unique Google function to verify the photographs' veracity and determine whether they are truly related to the news. Although today's youth tend to be skeptics, they are nevertheless susceptible to being seduced by things they find interesting. Similarly, parents prefer to keep to their preconceived notions by ignoring news that is actually reliable. Environmental elements, surrounding circumstances, and moods are additional influencing factors. Additionally, there are groups of people that purposefully spread hoaxes in an effort to gain notoriety or sensation [10].

When the social media behavior patterns of netizens in Indonesia are evaluated by numerous agencies both at home and abroad, one of which is a well-known American computer development business, Microsoft, it is evident that the social media conduct of people or netizens in Indonesia is notoriously awful. In 2020, they took attention by conducting a survey that looked at how courteous internet users were. Out of the 32 nations considered, Indonesia came in at position 29. This was a poor accomplishment for Indonesian internet users, and as a result, Indonesia was identified as the nation with the fewest courteous online users in ASEAN. The poll serves as a barometer for this research, which was motivated by the fact that Indonesian internet users' social media behavior has come under international scrutiny. According to a

survey by Microsoft, internet users in Indonesia are very bad. This conclusion is based on the responses of 16,000 respondents from around the world and includes indications of judgments based on internet users' actions or reactions to trending topics or news, national events like regional or presidential elections, or online newsworthy items like hoaxes, hate speech, or violent incidents. They are viewed negatively because Indonesian internet users are thought to be highly total in their emotional expression on social media, which makes them quickly transgress moral and legal requirements without considering the repercussions. Indonesian internet users' social media behavior tends to be irrational; they never hold back while expressing their emotions online. Their behavior prioritizes situational responses without considering the long-term effects of their choices (Soeparno & Sandra, 2011).

### 3. Material and Method

Secondary data from Twitter.com are used in this study. Social network analysis (SNA), which focuses on relationships using graphical theory and may be demonstrated through presentations on a network, is used for data analysis. In order to study interaction patterns on communication networks, network visualization relationships can present precise information based on the interests of its users. This program can produce data that can be sorted into categories and automatically build network chains based on the names of Twitter account holders (actors). For this study, data from Twitter is retrieved using Netlytic software and saved as Ms. Excel files. On July 11, 2023, 115 tweets in total were downloaded during activities from July 1 to 11. Additionally, a visualization of the gathered Twitter messages' categorisation was included. At this point, a conclusion will be drawn after a descriptive analysis and grouping of the twitter data visualization results. With a filter, only tweets in Indonesian were evaluated from the tweet data that was retrieved from the social media platform Twitter using the search term #Berobatkeluarnegeri.

### 4. Result

115 tweets about receiving medical care abroad that were downloaded on July 11, 2023 during activities from July 1 to July 11 at 13:00 were subjected to social network analysis, as seen in figure 1. On July 4 and July 10, 2023, there was a noticeable spike in posting activity.

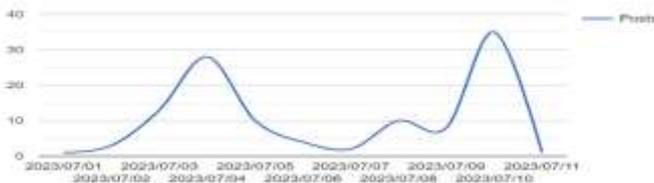


Figure 1. Graph of Twitter user activity when posting topics of medical treatment abroad on 1 – 11 July 2023.

Figure 2 shows a pie chart representation of the ten Twitter accounts of individuals who have posted the most about receiving medical care abroad. One of the most important electronic media accounts in Indonesia, Kompas.com, can be considered as being included.

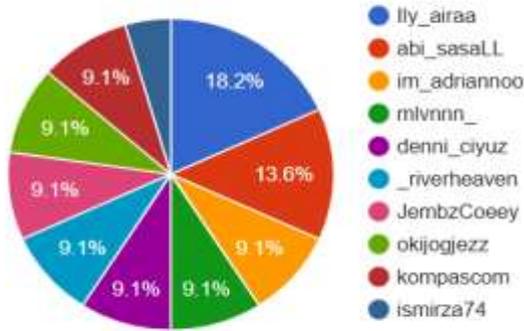


Figure 2. Pie chart visualization of the top 10 Twitter user accounts that posted the most medical treatment abroad.

Figure 3 displays a word cloud visualization or a list of the top 10 terms connected to receiving medical care abroad that are most frequently used in tweets.

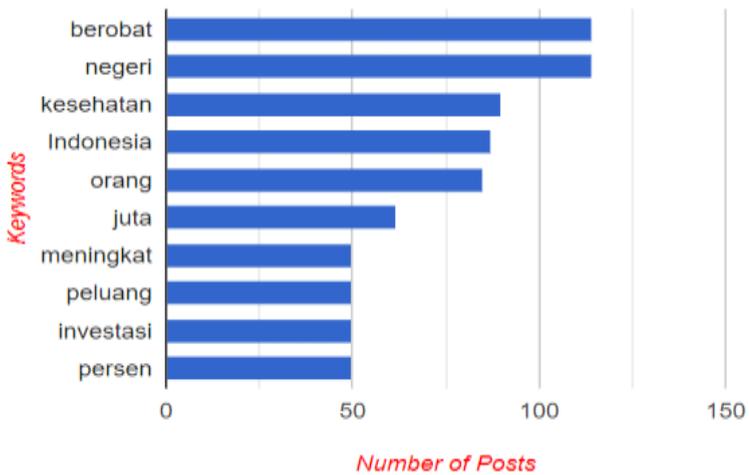


Figure 3. Word cloud visualization

Figure 4 shows a representation of the interaction patterns among Twitter users who tweet about receiving medical care abroad. It's interesting to note that the main account with the most interactions on this subject is that of Indonesian President Joko Widodo.

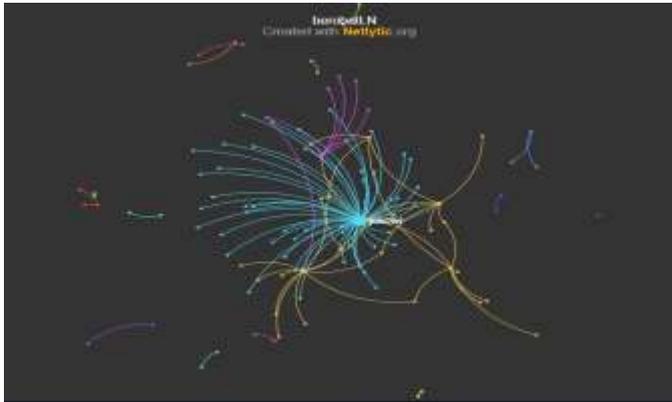


Figure 4. Visualization of the distribution of Twitter user interactions when posting tweets related to the topic of medical treatment abroad

Figure 5 displays the percentage of Twitter users who have traveled overseas for medical care. As can be seen, the highest amount, or 37.39%, has to do with the purpose of the trip. This is an intriguing discovery and a chance for Indonesian hospitals to use hospital tourism to draw patients and their families for treatment in their own nation.

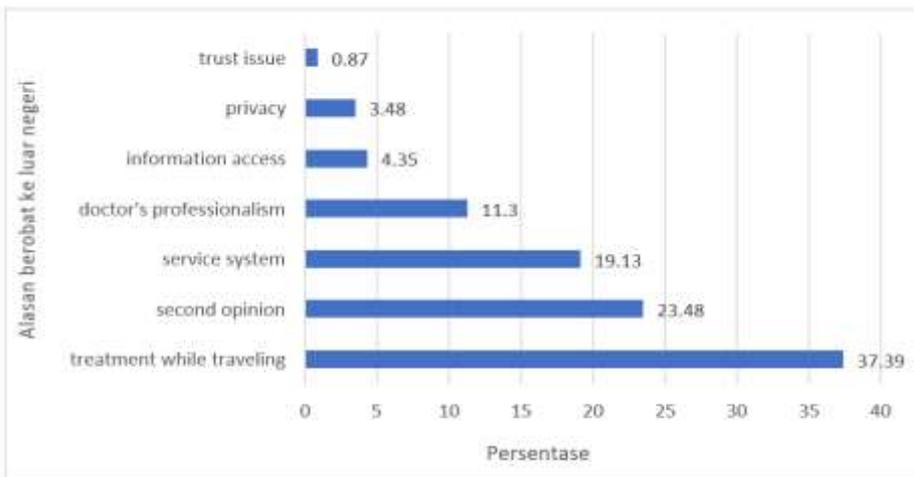


Figure 5. Visualization of the percentage of Twitter users regarding reasons for seeking treatment abroad

## 5. Discussion

Some Indonesians' motivations for receiving care abroad are, of course, based on their primary goal of recovering quickly. There may be certain medical procedures that might increase your chance of healing but are unavailable in your country of origin. Patients and their families might not think twice to travel abroad for the intended medical operation in order to aid in their recovery. There are other factors to take into account, such as the availability of a greater range of medical procedures, alternative surgical techniques, or specific medicines that improve recovery prospects. Patients and their families are typically more eager to try because of this, even though they have to go farther and spend more money. For Indonesian patients, information access is especially important because, in general, they need to know about the processes and expenses of therapy before receiving it. Many hospitals abroad provide special packages for travelers seeking medical care, often even covering travel and lodging while receiving care [12].

The third factor is that Indonesia has a sizable population spread across many different regions. This situation demonstrates that not all hospitals, especially those in remote areas, have the best infrastructure. In nations that have adopted the idea of medical tourism, the government is able to provide facilities, technology, and stringent patient safety and service requirements while yet maintaining equity. The services offered are thorough (complete), in addition to having good response times. This is because they are effectively integrated, making the doctor's diagnosis more accurate. Many foreign hospitals have also gained accreditation from the Joint Commission International (JCI) and the International Organization Standardization (ISO) 9000. People finally feel more secure in the caliber of medical treatments provided by foreign hospitals or clinics thanks to the international certification mark [13].

In addition to the privacy issue being a major worry for patients and their families who feel uncomfortable receiving treatment at home, hospital tourism is another reason Indonesian patients seek treatment overseas. This is because some Indonesians like traveling. Perhaps the patient feels uncomfortable because of an unsupportive atmosphere or because too many people around them are curious about their unusual sickness. To concentrate more on receiving therapy, it may be possible to receive treatment overseas. More privacy is provided for patients and their families, making the treatment procedure more tolerable [14].

Regarding their ailment, some Indonesian patients seek a second opinion. He claims that this is not to say that doctors in Indonesia are in error or are not correct, but rather that one should consider getting a second opinion in order to acquire further insight. Additionally, patients who require quick treatment must have a shorter waiting period because, in their home country, it is possible to do the procedure and patients must wait their turn with other patients due to the shortage of specialized medical personnel. However, there will be more specialized specialists for similar instances if you receive treatment abroad, making it possible for quick surgery [12].

## 6. Conclusion

Social media has evolved from a place for virtual communities to express thoughts, ideas, and grievances to a platform for data mining. The findings of this study revealed that Indonesian Twitter users' perceptions on the justification for receiving medical care overseas were that it was done in conjunction with tourism. The Indonesian government has a unique chance to expand the health and tourist industries and strengthen the nation's economy. Indonesia has the potential to be the best medical tourism destination in the world as a result of its wealth and natural beauty. To get a second view is the second justification provided by Twitter users. Patients typically seek medical advice from many doctors for a variety of reasons, including uncertainty about the diagnosis or treatment recommended, displeasure with the initial doctor's communication, a need for subspecialist knowledge, and referrals from others. The service system and professionalism of the medical staff are additional factors in patients choosing to receive their care abroad. Patients are drawn to this option because they believe that the quality of care is improving due to faster perceptions of trust and information access. The concern over privacy was the final point raised by Twitter users in relation to receiving medical care overseas. These results are anticipated to spur Indonesian hospitals to enhance patient care and service quality for their own residents.

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