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The Halodoc's Social Media Data Analysis Amidst Covid-19 Pandemic: An Evidence from Indonesia

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Abstract

This study aims to analyze Halodoc telehealth services reputation through its social media during Covid-19 pandemic critical time of 2020-2021 by using big data analysis. During that period, more people increasingly used e-health application services. This study applies data scraping technique to analyze big data collected from Halodoc's social media official accounts. The analysis includes contents, views, comments, likes, dislikes, and shares from the audiences toward Halodoc's social media platforms. The results indicate that Halodoc's brand reputation is considered positive. YouTube was the Halodoc's social media platform that most got attention from customers' actions (views, likes, comments, and dislikes). Meanwhile, its Instagram was the most demanded by customers because they wanted to win the prizes from Halodoc. And finally, Facebook was the less communicative social media platform, due to the problem on handling the Covid-19 tests. Several issues need to be resolved by Halodoc to further meet the user experience's expectations.

Keywords: *Big data analysis; Covid-19; e-Health application; social media; user experience.*

Background

Due to the Covid-19 outbreak, many businesses reduced or halted their operations in regular work due to government-mandated closings and stay-at-home orders (Bick et al., 2020; CNN Indonesia, 2020). Limited interaction with others causes most community activities to be carried out at home, including buying and selling health needs. Telehealth can support the medical responses and continuation of health service delivery during and after health emergencies and natural disasters (Lurie & Carr, 2018). Telehealth is part of e-Health (electronic health) services. The use of the online platform is essential to reduce the risk of people getting infected with Covid-19. The increasing use of online platform services during this pandemic provides an opportunity for Halodoc as an e- Health consultation provider to receive public attention. However, this pandemic made people reluctant to go to the public health clinics known as "Puskesmas". According to the Ministry of Health, 83.6% of Puskesmas had a decrease in patient visits. In addition, 43% of Puskesmas eliminated their monthly clinics for children and pregnant women (posyandu) services due to public concern about the pandemic (Aditya, 2021).

Posyandus play an important role in reducing infant and maternal mortality rates and are managed by Puskesmas in Indonesia. The decreasing public interest and provision of posyandus has increased cases of children under five with stunting (Permatasari & Turrahmi, 2020). This worsens the overall quality of public health. As an alternative, people prefer to use telehealth services for treatment and consultation about their health. The number of searches for e-health platform media as reported by Google Trend increased from 2019 to 2021. Halodoc achieved the highest number of searches compared to other e-Health companies in Indonesia. Indonesia extended free telemedicine services for Covid-19 patients nationwide (Ang, 2021). Halodoc was one of the two companies selected by the government to provide these services.

E-Health signifies a broadening of telehealth to combine the technologies as a standard of treatment (Ortholive.com, 2018). People need e-Health services to reduce the risk of being infected by Covid-19 and other diseases. The pandemic accelerated the number of online platform users, especially social media, to support the needs of people during the lockdown. Social media users in healthcare have been increasing during the Covid-19 pandemic (Wong et al., 2021).

This study analyses the most used social media for digital marketing efforts by Halodoc, including Instagram, Facebook, and YouTube, to understand its brand reputation. Zhang (2015) in his research describes the brand image as the general perception and feeling of the customers. There are two main reasons for selecting the three social media platforms. First, these are the most active accounts used by Halodoc and second, these are also the most popular social media used by Indonesian society. Social media provides a common channel for healthcare professionals, patients, and the public to communicate their health issues. By utilizing Python Pandas coding supported by Jupyter, the big data of Halodoc's social media were acquired, supported by Selenium and Instaloader as the web scraping tools and converted into CSV format, producing readable raw data in Microsoft Excel format. The analysis included the posted content, the comments of social media users, and the conversations of Halodoc's medical staff and its customers.

Literature Review

Eysenbach (2021) stated the definition of e-Health as *"*an emerging field in the intersection of medical informatics, public health and business, referring to the health services and information delivered or enhanced through the Internet and related technologies". According to the World Health Organization (WHO), e-Health uses information and communication technologies. E-Health was first documented when the Royal Flying Doctor service provided medical consultation via Morse code in Australia in 1926 (Rooij & Marsh, 2016). E-health has assisted in disease prevention, treatment, and health advancement through its applications and tools. These applications consist of e-mail, telehealth applications, online communities, web portals, and voice recognition (Al-Rimawi et al., 2016).

In Indonesia, e-Health is officially mentioned by the Decree of The Minister of Health of The Republic of Indonesia number 192/MENKES/SK/VI/2012 as part of strengthening the action plan roadmap for Indonesia health and information systems. It is stated that e-Health uses ICT (Information and Communication Technology) in the health sector to improve health services. E-health comprehensively covers all government

affairs related to health services such as patient care, research, and education in health, monitoring general public health and pandemics. Many governments and private hospitals in Indonesia have used E-Health applications on public health service websites (Widiyastuti, 2008).

Halodoc has been named the most exciting healthcare start-up in Indonesia, among 210 companies (Maulana, 2017; Tracxn.com, 2021). Not only top in Indonesia, but Halodoc is also one of the top e-Health providers in the world. As reported by Indonesian medias, Halodoc is one of the 150 most innovative e-Health providers globally from the CB Insights version (DailySocial Newswire, 2020; Hidayat, 2020; Merdeka.com, 2020). In addition, Halodoc is the only start-up in Southeast Asia that placed in the list of 150 e-Health (AsiaQuest, 2020).

The CB Insights research team used data-based research methods in selecting 150 digital health providers. CB Insights considered several factors for its rank evaluation, such as: patent activity, media coverage sentiment analysis, investor quality, mosaic score, market potential, competitive landscape, team strength, market potential, and technological innovations offered (DailySocial Newswire, 2020; Merdeka.com, 2020). There are five countries in this competition including Britain, Canada, China, France, Israel, and the United States. Halodoc was included in the virtual care delivery category which was awarded nearly USD 5 billion in funding from CB Insights (Hidayat, 2020; Merdeka.com, 2020). This achievement of Halodoc provides opportunities and inspiration for Indonesian innovation to be able to compete globally.

Being a local company that innovates in Indonesia, Halodoc's main competitors in the same field include Alodokter, KlikDokter, and Hello Sehat. Like Halodoc, Alodokter also has a website containing health articles and mobile applications (*Alodokter's Company Profile*, n.d.). However, Alodokter is more focused than Halodoc with online articles and health consultations than selling drugs and medical equipment. KlikDokter is an e-Health with websites and applications like Halodoc and Alodokter (*Klikdokter's Company Profile*, n.d.). However, KlikDokter does not have a service that connects patients with insurance companies. It only focuses on selling drugs online, online consultation, and providing health articles. Hello Sehat is the most different e-Health from other competitors of Halodoc (*Hello Sehat's Company Profile*, n.d.). Hello Sehat focuses more on providing health information from doctors without providing online consultation and the buying and selling of drugs. However, there are similarities between Hello Sehat and Halodoc; patients can check their health independently with tools such as a BMI calculator, menstrual calendar, and pregnancy calendar.

Methodology

This study used coding techniques or syndicated data from Fastwork, which provides local data scraping services in Indonesia. This method of collecting data through coding is referred to as data scraping. In other words, data scraping is called web harvesting or extraction to obtain data from WWW (World Wide Web) and save it to a database for subsequent analysis or retrievals (Zhao, 2020). The use of data scraping reduces the error of the measurements and is more efficient in collecting data (Mooney et al., 2015; Polidoro

et al., 2015). To complete scraping this study required several applications and coding systems, including Selenium, Jupyter, Python Pandas, and Instaloader.

The first step of scraping YouTube and Facebook data was installing and running the Chrome WebDriver and Python Pandas. Then navigate the Chrome WebDriver through Python Pandas to the social media sites using Selenium and Jupyter. And then enter some coding into Jupyter to operate the WebDriver. The next step involved logging in and opening the Halodoc official account through WebDriver and then extracting some code in Jupyter. Similar steps were taken to retrieve data on Instagram. The difference is that Facebook and YouTube were using Selenium, while Instagram was using Instaloader software.

Results and Discussions

The data used for this study were taken from the beginning of coronavirus entering Indonesia on March 2nd,2020 until this research took place March 2nd, 2021. The data acquired was based on posts of three social media sites of Halodoc, including its YouTube, Instagram, and Facebook corporate accounts. This study analyzed three research object categories from the three social media official accounts, consist of texts, images, and videos. The text analysis includes the conversations between Halodoc and customers, the posts' captions, the comments from social media users, and the testimonials from customers. Image analysis consists of the texts or captions on the pictures and the illustration. Lastly the video analysis consists of the video content and the topics covered.

The data was acquired on June 11th, 2021, at 21:51 West Indonesian Time from its official accounts. The terms for "subscription" in the three social media used in this study were different. YouTube subscriptions are called "subscribers," Instagram subscriptions are called "followers," and Facebook subscriptions are called "likes." First, the YouTube channel of Halodoc reached 47.8 thousand subscribers, while the Instagram account of Halodoc reached 707 thousand followers and finally the Facebook page of Halodoc reached 349 thousand likes. The data scraping results, were retrieved through Jupyter and extracted as CSV files. The raw data of CSV was available to be read by Microsoft Excel. The data computation results can be shown in Tables I, II, and III.

Halodoc's YouTube Data analysis

The contents of Halodoc's YouTube were dominantly about advertising, Covid-19, and general health (human and animal health). Based on the data as presented in Table I, the most demanded video was advertising.

Table 1.
Halodoc's YouTube Results

Total Posts	Total Viewers	Total Likes	Total Comments	Total Dislikes
91	82,676,897	13,856	288	7,290

This study found six videos with the highest number of views, likes, comments, and dislikes. To accommodate variation in user devices the video sizes varied. Hence, the videos are easier to be which in turn made customers feel more comfortable in their viewing experience. These videos were designed to introduce

Halodoc to the viewers. The videos are professional quality in both sounds and graphics which communicates to the viewers a favorable impression of the YouTube content (Lee et al., 2018).

To maintain a high viewer interest, it is imperative to post new videos in a timely manner. Predictable and repetitive experiences trigger boredom (Heshmat, 2017). In the YouTube conversation analysis on how Halodoc replied to customers' comments, Halodoc provided the link in the caption to its official website, application, and social media. Replies to comments from Halodoc were sporadic. Many customers who asked questions through comment columns mentioned that Halodoc did not reply with answers. Not all posts were answered, and there is only one customer who commented on a video.

There were many Halodoc posts about Covid-19. This topic discussion on the videos was about rapid tests and tips for the “new normal” activities. Our data indicated that this topic was in demand by customers, even though the t the topic was far from advertising. Halodoc explained this topic by using three variations: direct conversations, animations, and pictures with written and verbal messages. In these videos, Halodoc specifically explained how a rapid PCR test drive-thru works and gave tips on maintaining health in a manner to reduce the risk of being infected by Covid-19.

From the analysis above, it can be concluded that the consistency of similar content creation from one post to another is indicative of Halodoc’s unique style characteristics. The marketing strategy of creating different types of content in the form of animations, images, and role playing was positively received by the viewers. Although several videos were similar each other, the material presented was primarily informative and insightful for customers, especially for ordinary people who lack an understanding of the world of health. Furthermore, the idea of delivering material in verbal and writing was considered as positive as it supports access for those with hearing and sight challenges (Dale et al., 2017).

Based on the data, most customers' comments agree with the material presented by Halodoc through videos on YouTube. Some customers indicated that they got helpful information and gave positive comments, such as gratitude and support to Halodoc: *"This video is instructional", "Thank you for the information." "Good luck!"* and *"Agree."* Other comments were also positive by praising the content of Halodoc in words *"Great"*, "*Cool."* The word '*good*' indicates the probabilistic affinity of positive perception (Acheampong et al., 2020). Customers' actions to give positive responses are not always through comments but also from giving likes to Halodoc videos. As a result, the total of all comments that Halodoc got on its contents reached 13,856 comments. This number was greater than the total 7,290 dislikes.

Based on the obtained data, there were no negative comments found on Halodoc's YouTube content. However, the dislikes from customers illustrates that there is some negative sentiment about Halodoc’s YouTube content. From the above analysis, it can be concluded that Halodoc's YouTube content tends to be thought of as generally positive, which means the performance of Halodoc's brand reputation on YouTube was good. The comparison between the number of likes and dislikes is 1:1.9. Halodoc got some positive comments and did not get any negative comments. It means the positive ratings of customers' perception were higher than the negative perception.

Halodoc's Instagram Data Analysis

The content in the official Halodoc Instagram account was dominantly about distributing quizzes, Covid-19, and information about healthy lifestyles. Based on the data customers focused mainly on quizzes with prizes and the topic of Covid-19. These two types of content got the most likes and comments from the customers as presented in Table 2. The quizzes got customers' attention because they offered prizes and were offered in an event format. Customers are more likely to attend an event to share knowledge and find friends (Paris et al, 2010). Besides that, customers wanted to win the prize from Halodoc.

Table 2
Halodoc's Instagram Results

Total Posts	Total Video Views	Total Likes	Total Comments
703	2,444,443	1,203,038	44,999

Halodoc's Instagram content attracted customer attention on the topic of Covid-19, a situation that was currently affecting their lives. Customers appreciated the information about prevention and overall risk reduction of serious illness. By sharing information on this vital topic, Halodoc recognized an opportunity to better service its customer base while supporting an important societal initiative. Halodoc sees these actions as tools in increasing customer loyalty and building a positive band image.

Halodoc company logos and brand colors provide a consistent, professional appearance in Instagram. This positive brand image and good promotion can significantly affect customer's loyalty (Irawan et al., 2020). All content in Halodoc's Instagram had transparent and communicative captions compared to other Halodoc social media. Halodoc answered almost all the customers' comments. There are 4,547 friendly answers with emoticons to its customers on Halodoc's Instagram posts. The style of speech used in the comments looks casual, friendly, and relaxed. With this communication style, Halodoc seems user friendly to all its customers. From the above analysis, it can be concluded that Halodoc's Instagram account was the most communicative in-terms of its images, captions, and answers to comments, compared to its other social medias.

The data shows customers' responses were mostly "Thank you" for the content provided by Halodoc. Many customers also responded to the Halodoc material by providing support and praise. There were some humorous comments with response to Halodoc because the Halodoc administrator came across as friendly and always patient in answering customer comments. In addition, many customers gave testimonials on how friendly Halodoc was in providing its services to customers. Other comments said that Halodoc was well maintained. Sentences accompanied by emoticons, especially french like symbol (the red symbol of love) much used in Indonesia to express like, love, and happy feelings (Tang & Hew, 2019). From textual analysis, it can be concluded that customers were satisfied and happy with Halodoc.

While Halodoc received many positive comments, there were still some negative comments, especially complaints about the Covid-19 services. However, the data showed that the most complaints were about Halodoc's inaccuracy in providing Covid-19 test results. These complaints also included the use of capital letters to emphasize the customer's anger. A research study noted that anger from personal experience assigned a negative affinity of perception (Acheampong et al., 2020). Almost all customers' comments agreed that

Halodoc service was unprofessional in providing Covid-19 test results. Customers seemed disappointed, unhappy, and dissatisfied, because Halodoc was perceived as not fulfilling its service commitments. Therefore, it can be concluded that Halodoc services reputation was in trouble.

From the above analysis of Halodoc's performance on Instagram, this study shows that Halodoc had relatively a good reputation performance on its social media. Halodoc can deliver materials to customers, communicate with customers, and provide valuable content for customers successfully Customers' perception on Halodoc was dominantly positive. Although there were many negative complaints related to Halodoc's services in providing Covid-19 test results, it cannot be concluded that these results on only one topic were indicative of an overall poor Instagram performance.

Halodoc's Facebook Data Analysis

The Facebook page of Halodoc posts mostly shared information about diseases that are often found in society, daily healthy lifestyles, and Covid-19. The method of delivering material on the Halodoc Facebook page was in images, videos, and external articles from the Halodoc's website. This part will analyze the content that customers were most attracted to in Facebook. The data includes the likes, comments, and shared posts and is summarized in table 3.

Some of Halodoc's Facebook pages showed relatively short sentences without any detailed explanations. One video was embedded on the Halodoc homepage so that it was not sunken by other posts. The content of this post was warning customers against fraud by unknown parties claiming to be Halodoc. This illustrates Halodoc's consistent concern about customer risks such as fraud in this case. Halodoc supports the government efforts in fighting fraud from big data scavenger activities in e-health services (Priscila & Robin, 2021; Senaharjanta & Fendista, 2021).

Halodoc did not answer all customer comments on its Facebook media, even though there were many customers queries. The following was the only Halodoc answer in the video post to customers' comments, translated from Indonesian language to English:

"Hi sis, need help with your personal data in DM? We will help (emoticons)"

This use of emoticons gives the impression of being friendly and polite. This nature of written conversation makes the customers feel enjoyable. The sentence above showed that Halodoc responded to a customer who was a victim of fraud by offering help via DM (Direct Message or Facebook Messenger). However, a quick response will not necessarily give an immediate fix (Clutch, 2018). The purpose of using DM is to protect the customer's privacy and data security; customer data security can be guaranteed to gain customer trust (Appel et al., 2020).

Table 3.
Halodoc's Facebook Results

Total Posts	Total Video Views	Total Likes	Total Comments
1,174	24,822	888	4,575

Other posts on Halodoc's website were presented in the form of links of articles. This method was efficient, so that the post did not overwhelm the consumers' homepage. Customers can simply click the link, and it will immediately direct them to the Halodoc's website. On the Halodoc website, customers access a lot of information about health according to the title in the links. There was a total of 6,417 health information shares made by customers to those around them. From this analysis, it can be concluded that Halodoc's contents on Facebook was informative, varied, and valuable for customers.

The positive ratings of customer perception on Halodoc's Facebook content were analyzed by looking at the positive comments relevant to the post. More positive comments in content indicate a higher brand reputation for Halodoc. Most of the comments on Halodoc's Facebook page were about their illness experiences. There were no relevant comments that underscored a positive perception like Halodoc's other social medias. In addition, there were no significant comments that showed positive testimonials after using Halodoc's services. There were comments which can be categorized as neutral; the customers only agreed to Halodoc's content implicitly by expressing opinions that aligned with the topic (agreeing) through comments.

On the other hand, the data included several insults and, in some cases, ridiculed Halodoc about both customers' experience and the articles' content. There was a complaint about the purchased goods not matching with the customer's order, and Halodoc was accused of breaking its promise. The customer claimed 'irresponsible' and 'unprofessional' company conduct which indicates that the customer's expectations were not fulfilled. The second comment was a subtle allusion to Halodoc's content via an emoji of a face with rolling eyes. According to the Online Emoji Dictionary, this emoticon has various meanings such as subtle innuendo, boredom, and disapproval (Kamus Online Emoji, n.d.). Those meanings indicate a negative perception. Another negative comment was about Halodoc's delay in handling customers' Covid-19 test results. From the above analysis, it can be concluded that Halodoc needs to improve its performance on Facebook because testimonials and customer comments were predominantly negative. Therefore, this study recommends that captions and conversations with customers need to be improved, so as to increase its base of satisfied, loyal customers.

Conclusions and Recommendations

The contents of Halodoc's social media on YouTube, Instagram and Facebook were considered as professional, creative, informative, and helpful for customers during the Covid-19 pandemic outbreak in 2020-2021 period. The data analysis on YouTube indicates that Halodoc's content was limited mostly by the customers' attention. Halodoc's YouTube ad contents were usually watched accidentally by the customers. As a result, it was the content that got the most customers' actions (views, likes, comments, and dislikes). Although the content was limited, all customers' perceptions on content were considered as positive.

The Instagram data analysis illustrates that most of the content was demanded by customers. The content that engaged customer participation and attention was the quiz event open prizes to all customers. The Halodoc administrator was perceived primarily due to how he delivered captions and responded to customers' comments. The third data analysis found that Halodoc's Facebook content was less communicative. The result can be seen from how the caption was written, which only included one or two sentences, and the customers'

comments were somewhat ignored. Most of the customers complained rather than giving positive testimonials about Halodoc services on handling Covid-19 tests.

Based on the above conclusions, the recommendations to Halodoc are the first. Halodoc may want to improve the communication strategy with its customers through social media channels. The written caption on the official website consists online only of the title of the articles. Including explanatory sentences may increase customer's interest. For example, it may contain quotes, words of wisdom, or other related resources which may develop more attention being paid to the content. Halodoc also needs to train employees on best practices in to replying to customers.

Second, to increase customers' participation on social media, Halodoc may want to utilize more events involving giving away prizes for the winners. The data from this study shows that the event content on Instagram got the highest interest from the customers According to the data analysis on Halodoc's Instagram and Facebook platforms, many negative comments reflected customers' dissatisfaction with Halodoc' services on PCR and swab Covid-19 tests. Customers need to be assured that Halodoc will honor its promise of a one-day turnaround on test results. Moreover, the Covid-19 test was considered quite expensive during that time. With more transparent information and good communication, customers will have expectations more closely aligned with those of Halodoc's, thereby minimizing negative customer testimonials. Lastly, the content should be made easier to be understood by the layman. Based on the data, many comments were considered as not relevant to the topic. Irrelevant comments might be because customers did not fully understand Halodoc's messages.

Similar research could be completed with big data analysis on social media users, about whether the user numbers will be decreasing or increasing after the Covid-19 pandemics. There are many possibilities to complete further research by using similar topics and big data analysis in other countries to allow for a case study comparison.

References

Acheampong, F.A., Wenyu, C., & Nunoo-Mensah, H. (2020). Text-based emotion detection: Advances, challenges, and opportunities. *Engineering Reports*, *2*(12189), 1–24. https://doi.org/10.1002/eng2.12189

Aditya, N. R. (2021, March). Ministry of Health: The Pandemic Gave Significant Impact to the Decreasing of Health Services in Public Health Clinic. *Kompas.Com*. https://nasional.kompas.com/read/2021/03/17/12104731/menkes-pandemi-sangat-berdampak-pada-penurunan-layanan-di-puskesmas?page=allhttps://www.whatsapp.com/abo ut/

Al-Rimawi, R., Dwairej, D., Masadeh, A., Al-Ananbeh, E., & Ahmad, M. (2016). E-health Concept Development and Maturity in Literature. *Journal of Health, Medicine and Nursing*, *29*, 156–166. https://iiste.org/Journals/index.php/JHMN/article/view/32671/33562

Alodokter's Company Profile. (n.d.). Alodokter.Com. Retrieved January 22, 2023, from https://www.alodokter.com/

Ang, A. (2021, July). Indonesia extends free telemedicine services for COVID-19 patients nationwide.

Healthcare IT News. https://www.healthcareitnews.com/news/asia/indonesia-extends-free-telemedicine-services-covid-19-patients-nationwide

Appel, G., Grewal, L., Hadi, R., & Stephen, A. T. (2020). The future of social media in marketing. *Journal of The Academy of Marketing Science*, *48*(2020), 79–95. https://link.springer.com/article/10.1007/s11747-019-00695-1

AsiaQuest. (2020). *Halodoc the Only Startup in South East Asia that Listed in the 150 Digital Health Companies*. AsiaQuest Indonesia. https://aqi.co.id/news/halodoc-satu-satunya-startup-di-asia-tenggara-yang-masuk-daftar-digital-health-150

Bick, A., Blandin, A., & Mertens, K. (2020). *Work from Home After the Covid-19 Outbreak*. https://doi.org/https://doi.org/10.24149/wp2017r1

Clutch. (2018). *People Expect Brands to Respond to Social Media Comments Within 24 Hours*. CISION PR Newswire. https://www.prnewswire.com/news-releases/people-expect-brands-to-respond-to-social-media-comments-within-24-hours-300742071.html

CNN Indonesia. (2020, March 2). Jokowi announces Two Indonesian Citizens Have Positive Coronavirus in Indonesia. *CNN Indonesia*. https://www.cnnindonesia.com/nasional/20200302111534-20-479660/jokowi-umumkan-dua-wni-positif-corona-di-indonesia

DailySocial Newswire. (2020). *Halodoc is Listed as 150 Digital Health Most Innovative in 2020 by CB Insights*. DailySocial Newswire. https://dailysocial.id/wire/halodoc-masuk-daftar-digital-health-150-paling-inovatif-di-2020-dari-cb-insights

Dale, K.R., Raney, A.A., Janicke, S.H., Sanders, M.S., & Oliver, M. S. (2017). YouTube for Good: A Content Analysis and Examination of Elicitors of Self-Transcendent Media. *Journal of Communication, 67*(6), 897–919. https://doi.org/doi:10.1111/jcom.12333

Hello Sehat's Company Profile. (n.d.). Hellosehat.Com. Retrieved January 22, 2023, from https://hellosehat.com/

Heshmat, S. (2017). *Eight Reasons Why We Get Bored*. Psychology Today. https://www.psychologytoday.com/us/blog/science-choice/201706/eight-reasons-why-we-get-bored

Hidayat, M. (2020, August 26). Halodoc is Listed at 150 Digital Health Most Innovative Companies in 2020 by CB Insights. *Liputan6.Com*. https://www.liputan6.com/tekno/read/4340062/halodoc-masuk-ke-dalam-daftar-digital-health-150-versi-cb-insights

Irawan, A.D., Dahlan, K.S.S., Marta, R.F., Piantari, L.L. & Chinmi, M. (2020). The Influence of Corporate Image and Promotion on Customer Satisfaction towards Loyalty. *The Proceedings of the 4th International Conference of Social Science and Education (ICSSED) 2020*, 121–131. https://doi.org/http://dx.doi.org/10.4108/eai.4-8-2020.2302475

Kamus Online Emoji. (n.d.). *Face with Rolling Eyes*. Kamus Emoji Online. Retrieved January 22, 2023, from https://emoticon.id/emoji/🙄-wajah-dengan-mata-bergulir/

Klikdokter's Company Profile. (n.d.). Klikdokter.Com. Retrieved January 22, 2023, from https://www.klikdokter.com/

Lee, H., Choi, H., Jang, Y., & Lee, J. I. (2018). YouTube as a learning tool for four shoulder tests. *Primary Health Care Research & Development*, *20*(70), 1–7. https://doi.org/https://doi.org/10.1017/S1463423618000804

Lurie, N. & Carr, B. G. (2018). The Role of Telehealth in the Medical Response to Disasters. *JAMA Internal Medicine*, *178*(6), 745–746. https://doi.org/10.1001/jamainternmed.2018.1314.

Maulana, R. (2017). *[Update] Kumpulan Startup Kesehatan Terbaik di Indonesia*. TECHINASIA. https://id.techinasia.com/kumpulan-startup-kesehatan-di-indonesia

Merdeka.com. (2020, August 30). Halodoc Startup is Listed at The World's Most Digital Innovation. *Merdeka.Com*. https://www.merdeka.com/uang/startup-halodoc-masuk-daftar-digital-health-paling-inovatif-di-dunia.html

Mooney, S.J., Westreich, S.J., & El-Sayed, A. M. (2015). Epidemiology in the Era of Big Data. *Epidemiology*, *26*(3), 390–394. https://doi.org/doi:10.1097/EDE.0000000000000274

Ortholive.com. (2018). *How Does e-Health Differ from Telehealth and Telemedicine?* Ortholive.Com. https://www.ortholive.com/blog/how-does-e-health-differ-from-telehealth-and-telemedicine/

Paris, C.M., Lee, W., & Seery, P. (2010). The Role of Social Media in Promoting Special Events: Acceptance of Facebook 'Events.' *Information and Communication Technologies in Tourism 2010*, 531–541. https://doi.org/https://doi.org/10.1007/978-3-211-99407-8_44

Permatasari, T.A.E., Turrahmi, H., & I. (2020). Balanced Nutrition Education for Posyandu Cadres during the Covid-19 Pandemic as Prevention of Stunting Toddlers in Bogor Regency. *AS-SYIFA: Jurnal Pengabdian Dan Pemberadayaan Kesehatan Masyarakat*, *1*(2), 67–77. https://doi.org/http://dx.doi.org/10.24853/assyifa.1.2.67-78

Polidoro, F., Giannini, R., Conte, R.L., Mosca, S., & Rosetti, F. (2015). Web scraping techniques to collect data on consumer electronics and airfares for Italian HICP compilation. *Statistical Journal of the IAOS*, *31*(2), 165–176. https://doi.org/10.3233/sji-150901

Priscila,G. & Robin, P. (2021). Big Data Scavengering & Healthcare World: Analysis of the Abuse of Big Data in the Indonesian Government's Efforts during the Covid-19 Pandemic. *Public Corner*, *16*(1), 37–57. https://doi.org/https://doi.org/10.24929/fisip.v16i1.1472

Rooij, T.-van & Marsh, S. (2016). eHealth: past and future perspectives. *Personalized Medicine*, *3*(1), 57–50. https://doi.org/https://doi.org/10.2217/pme.15.40

Senaharjanta, I.L. & Fendista, S. (2021). Infodemik Covid-19 dalam Perspektif Jean Baudillard (Studi Kasus Berita Hoaks Covid-19 di Website covid19.go.id). *Cakrawala*, *21*(2), 97–107. https://ejournal.bsi.ac.id/ejurnal/index.php/cakrawala/article/view/10072

Tang, Y. & Hew, K. F. (2019). Emoticon, Emoji, and Sticker Use in Computer-Mediated Communication: A Review of Theories and Research Findings. *International Journal of Communication*, *13*(2019), 2457–2483. https://ijoc.org/index.php/ijoc/article/view/10966

Tracxn.com. (2021). *HealthTech Startups in Indonesia*. Tracxn.Com. https://tracxn.com/explore/HealthTech-Startups-in-Indonesia

Widiyastuti, I. (2008). Analisa Aplikasi E-Health Berbasis Website di Instansi Kesehatan Pemerintah dan Swasta serta Potensi Implementasinya di Indonesia. *IPTEK-KOM: Jurnal Penelitian Ilmu Pengetahuan Dan Teknologi Komunikasi*, *10*(2), 113–128. https://www.researchgate.net/publication/260438219_Analisa_Aplikasi_E-Health_Berbasis_Website_di_Instansi_Kesehatan_Pemerintah_dan_Swasta_serta_Potensi_Implementasinya_di_Indonesia

Wong, A., Ho, S., Olusanya, O., Antonini, M.V., & Lyness, D. (2021). The use of social media and online communications in times of pandemic COVID-19. *Journal of The Intensive Care Society*, *22*(3), 255–260. https://doi.org/https://doi.org/10.1177/1751143720966280

Zhao, B. (2020). Web Scrapping. In C. L. Schlinter, L.A., & McNeely (Ed.), *Encyclopedia of Big Data* (pp. 3–5). Springer. https://doi.org/https://doi.org/10.1007/978-3-319-32001-4