DESCRIPTION OF KNOWLEDGE LEVEL AND STIGMA OF UNUD MEDICAL STUDENTS ABOUT COVID-19

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Abstract: **Introduction: Today, all parts of the world are facing a pandemic caused by SARS-CoV-2 or commonly known as the "coronavirus disease of 2019" (COVID-19). To be able to avoid morbidity and mortality due to COVID-19 it is important for all people to have a good level of knowledge and stigma against COVID-19. Methods: This research is a descriptive study using a cross-sectional design which aims to determine the relationship between the level of knowledge and the stigma of medical students at the Faculty of Medicine, Udayana University, towards COVID-19. Data collection in this study was only carried out at one particular time. The data obtained was then analyzed using SPSS. Results: The total number of respondents who filled out questionnaires to assess the level of knowledge of COVID-19 and assess the stigma of COVID-19 was 96 respondents. Description of the level of knowledge of a total of 96 respondents, almost two-thirds (64.6%) of respondents have a high level of knowledge about COVID-19. As for stigma, more than three quarters (78.1%) of respondents have low stigma against COVID-19. In addition, the results of this study show that there is a trend of increasing the level of knowledge among respondents with low stigma against COVID. Conclusion: The conclusions in this study are that the majority (64.6%) of Unud medical students' knowledge level about COVID-19 is categorized as having high knowledge, the stigma of Unud medical students towards COVID-19 is obtained by the majority (78.1%) in the low category, and there is a relationship significant difference between the level of knowledge and student stigma against COVID-19.**

Keywords: **level of knowledge, stigma, students, covid-19.**

I. INTRODUCTION

Today, all parts of the world are facing a pandemic caused by SARS-CoV-2 or commonly known as the "coronavirus disease of 2019" (COVID-19). The initial emergence of this case is thought to be at the end of 2019 in Wuhan, China which then spread to 167 countries outside China in March 2020.[1] At its initial appearance, SARS-CoV-2 had an attack rate of 30-40% in the community with a Case Fatality Rate of 3-4% globally.[2] In Indonesia, the first patient was confirmed on March 2, 2020, which within a month of cases grew to 1790 with 170 deaths. Currently in Indonesia there are 3,390,300 positive cases with a death rate of 122,633 people, with a Case Fatality Rate (CFR) of 3.1%. Based on data from the Bali Provincial Health Office, currently 103,508 people have tested positive with 3,225 deaths. The above data was found in Denpasar City as many as 34,767 people were confirmed positive with 788 cases of death. This makes Denpasar City the city with the highest COVID-19 cases in Bali Province. [3]

To be able to avoid morbidity and mortality due to COVID-19 it is important for all people to have a good level of knowledge and stigma against COVID-19. Knowledge is the result of a learning and training process and is influenced by the level of education of individuals and their communities as well as input from media designed to provide information to the public.[4] Meanwhile, stigma is defined as negative thoughts, views and beliefs that a person gets from society and also

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the environment which can be in the form of labelling, stereotypes, separation and discrimination that can affect the individual as a whole.[5] As potential health workers, medical students are one of the populations who are expected to have good knowledge and stigma against COVID-19 so that they can help educate the general public about this new disease. Based on various previous studies on COVID-19 medical students, it was generally found that the level of knowledge about the typical symptoms of COVID-19 tends to be good, but knowledge about special treatments and vaccinations is still not as good as knowledge about symptoms.[6] The stigma of medical students towards COVID-19 also tends to be good although a small number still have a negative stigma towards COVID-19. [7]

Stigma is known to be influenced by various factors such as psychological and cognitive processes from individuals, to the influence of other people's thoughts in the community. WHO stated that the negative stigma that society gives to COVID-19 is influenced by three main factors, namely the newness of this disease and many things that are still unknown about this disease, the human tendency to be afraid of something unknown and the ease of associating this fear with other people. others. Various previous studies have also shown a link between the level of knowledge and stigma towards other controversial diseases such as HIV/AIDS, epilepsy and mental disorders, where they found that a low level of knowledge can increase the risk of negative stigma in the community related to these diseases. In theory, knowledge is a part of the individual cognition process that can affect stigmatization of a person.[8] Meanwhile, several local studies conducted to see the relationship between the level of knowledge about COVID-19 and the stigma of people with COVID-19 and people related to COVID-19 found that the level of knowledge is not always inversely related to stigma. Studies conducted by Oktavianoor et.all and Janah et.all show that a low level of knowledge regarding transmission, prevention and treatment of COVID-19 has a relationship with negative stigmatization of COVID-19 in society due to fear and anxiety arising from disinformation.[9] However, a study conducted by Rahman et.all actually showed different results where people who had high knowledge of COVID-19 tended to misinterpret WHO recommendations to keep their distance from people with COVID-19, causing discrimination and negative stigma towards people with COVID-19. Unfortunately so far, studies studying the stigma of COVID-19 have only used samples from ordinary people, so there is no picture of medical student stigma associated with COVID-19.[10]

So far, there are still very few studies in Indonesia involving medical students as respondents for the level of knowledge and stigma against COVID-19. Therefore the authors are interested in conducting an analytical study that can show the relationship between knowledge level, stigma and the relationship between the two variables in medical students at the Faculty of Medicine, Udayana University, Denpasar.

II. METHODS

This research method is a descriptive study using a cross-sectional design which aims to determine the relationship between the level of knowledge and the stigma of medical students of the Faculty of Medicine of Udayana University against COVID-19. Data collection in this study was only carried out at one particular time. The sample of this study were medical students at the Faculty of Medicine, Udayana University, Bali during the study period who met the inclusion and exclusion criteria from the study and were willing to participate in this study. The inclusion criteria are all medical students at the Faculty of Medicine, Udayana University who were still enrolled during the study period and were willing to participate voluntarily in this study and filled out an informed consent form. The Exclusion criteria are medical students who do not fill out or fulfill the informed consent sheet before filling in the required data.

The collected data will be coded using SPSS 21.0 and the data will be analyzed descriptively and analytically. Demographic data will be described descriptively, while the relationship between knowledge level and student stigma will be analyzed using the Chis-square test, where a significant relationship is shown with a $p < 0.05$ value. The research results will be arranged in the form of tables and graphs.

III. RESULTS

The total number of respondents who filled out the questionnaire for assessing the level of knowledge of COVID-19 and assessing the stigma of COVID-19 was 96 respondents, all respondents were analyzed until the end. This research was conducted at the Faculty of Medicine, Udayana University, Denpasar by distributing the form online via Google form. The research was conducted for one month, from August 2022 to September 2022. Questionnaire data was then processed using SPSS ver. 23 to find out the relationship between the level of knowledge and the stigma of Unud medical students towards COVID-19.

The characteristics of the respondents can be seen in Table 1. This research includes three batch years, namely 2019 (40.6%), 2020 (32.3%), and 2021 (27.1%). Research respondents were dominated by female sex (56.2%) and aged 20-21 years (73%).

TABLE 1: Characteristics of Research Subjects

Variable	n (%)
Gender	
Male	42 (43,8)
Female	54 (56,2)
Age	
19 years	17 (17,7)
20 years	35 (36,5)
21 years	35 (36,5)
22 years	9 (9,3)
Year of study	
2019	39 (40,6)
2020	31 (32,3)
2021	26 (27,1)

This study used a closed questionnaire, obtained the level of knowledge which was interpreted into three categories, namely high, sufficient, and lacking. Stigma is categorized into high and low. An overview of the level of student knowledge regarding COVID-19 and the stigma against COVID-19 can be seen in Table 2 and Table 3

TABLE 2: Frequency Distribution of Respondents Knowledge Level

Knowledge level	n (%)
High	62 (64,6)
Enough	27 (28,1)
Low	7 (7,3)

TABLE 3: Distribution of Respondents' Stigma Frequency

Stigma	n (%)
High	21 (21,9)
Low	75 (78,1)

Based on Table 2 and Table 3, out of a total of 96 respondents, almost two thirds (64.6%) of respondents have a high level of knowledge about COVID-19. As for stigma, more than three quarters (78.1%) of respondents have low stigma against COVID-19.

Based on Table 4, the results of the Chi-Square test show a p value <0.001, so statistically there is a significant relationship between the level of knowledge and the stigma against COVID-19. The results of this study indicate that there is a trend of increasing the level of knowledge among respondents with low stigma about COVID. The higher the level of knowledge of respondents, the greater the percentage of low stigma. The lower the level of knowledge of the respondents, the greater the percentage of high stigma. This shows that the higher the knowledge, the lower the stigma against COVID-19.

TABLE 4: Results of Bivariate Analysis of Knowledge Level with COVID-19 Stigma

Knowledge Level	Low Stigma		High Stigma		Total		p value
	n	(%)	n	(%)	n	(%)	
High knowledge	60	96,8	2	3,2	62	100	
Enough knowledge	13	48,1	14	51,9	27	100	<0,001
Low knowledge	2	28,6	5	71,4	7	100	

IV. DISCUSSION

Description of Respondent Characteristics Based on Gender

The results showed that the sex in this study was dominated by women as much as 56.2%. The majority of findings on the characteristics of female respondents were also obtained by several previous studies including Putri et al., (91.5%); Alfikrie et al., (88.6%). A study conducted by Amin, that the older a person is, the more mature a person's way of thinking is, the older women and men will form a mindset between the two. In women, the right and left brain parts develop in a balanced way at the age of 0-6 years, while in men the right and left brains start to balance at the age of 6-12 years so that at the age of 18 years and over (adults) the development of the right and left brain has reached perfect stage. In addition, women are more diligent and diligent in seeking the latest information regarding COVID-19 from various sources so that their knowledge is broader and women's curiosity is very high related to the need to be safe within themselves so that they enrich themselves with more insight, especially COVID-19 19. Women can also understand the information obtained related to COVID-19 both from the mass media, social and community.[11,12]

Description of Respondents Characteristics Based on Age

The results showed that the dominance of respondents was included at the age of 20 and 21 years, namely 36.5% respectively. Based on age category, this age group belongs to the young/early adult category, namely the age range of 18-26 years. Similar findings were also obtained by the study of Alfikrie et al. that is, the majority of student respondents belong to the young adult category.[12]

When a person enters the stage of young/early adulthood, more and more information will be obtained. In addition, compared to late adolescents, individuals in early adulthood have been able to process information obtained logically and use it to be able to think critically. At the stage of early adulthood, individuals are also in the formal postoperative stage where individuals have thinking skills that involve creativity, intuition and the ability to consider information received. Based on this, this age group is still easy to receive good information and the desire to obtain information related to COVID-19 to increase knowledge is still high taking into account the information obtained. [13]

Description of Student Knowledge Level about COVID-19

Knowledge is the result that is formed from the process of sensing a certain object that someone does. Lack of knowledge level can affect a person's attitude or actions. During the COVID-19 pandemic, this lack of knowledge can lead to an increase in cases, low levels of public compliance in following government regulations, and poor attitudes, perceptions, and stigma towards COVID-19.[14]

In a study conducted by Neferi, it was also explained that someone who has broad or high knowledge does not necessarily mean that they also have a high education, because this knowledge is not only obtained from education, but can also be obtained through information circulating in the mass media. The more information a person gets, the wider the knowledge the respondent gets.[15]

Most of the respondents' knowledge level (83.3%) is in the high category (Table 5.2). The results of this study are in line with Rompis et al., 2021 which assessed the level of knowledge, attitudes and actions towards COVID-19 among undergraduate medical students and the medical profession. This study reports that the level of knowledge of medical students is 100% in good criteria. However, this study conveys the lack of understanding of medical students regarding the transmission of COVID-19, which is due to developments and research on the transmission of COVID-19 which are still ongoing. Meanwhile, another study conducted in mid-2020 reported that only 29.8% of medical students in Indonesia had an adequate level of knowledge about COVID-19. This study assessed knowledge regarding the pathogenesis, clinical manifestations, diagnosis, management, and prevention of COVID-19. This inadequate level of knowledge is related to the course of the disease which is not known with certainty and is still being developed. This is also related to the effectiveness and efficiency of the learning system in the midst of a pandemic.[16]

Based on the results of Usman et al's research, concerning the knowledge and attitudes of health students regarding the prevention of COVID-19 in Kendari City, it shows that 84.5% of health students have good knowledge.[17] The results of this study are supported by the research of Peng et al., showing that the knowledge of Chinese students related to COVID-19 with good knowledge results of 82.3% is in line with the research of Salman et al., regarding knowledge, attitudes and prevention practices related to COVID-19 showing that the knowledge of students in Pakistan related to knowledge in preventing COVID-19 has good knowledge. Sources of knowledge related to COVID-19 were obtained by students from

social media, the internet, television, the ministry of health, WHO and information from friends.[18,19] Contradictory research, which is inversely proportional to the knowledge obtained by students at a Bangladesh University, the results of the study show that some of the students' knowledge is poor as well as research by Chesser et al., which shows that students' knowledge about COVID-19 is classified as very low , only 18% of students know the signs and symptoms of COVID-19, even less than 18% of students understand the advanced complications of COVID-19 disease. Based on the research by Agarwal et al., it shows that out of 616 (24%) respondents among 2500 invitees in six Indian Medical Schools, the majority (54.1%) were in the final year of the undergraduate training program. Their knowledge of virus transmission, clinical features, diagnostic laboratories and drugs being trialled in COVID-19 is adequate among most of the students. However, understanding of the incubation period of 123 (20%) and symptom time of 30 (4.8%) is unsatisfactory. Three-quarters (75%) were unaware of treatment guidelines for COVID-19 and 155-quarter (25.1%) were unaware of necessary precautions during management.[20]

In this study, the majority of 2019-2020 medical faculty students had good knowledge regarding the main symptoms, etiology, and modes of transmission of COVID-19. Respondents also know about the basics of preventing COVID-19 which include avoiding crowds, not touching the face area, and isolating if infected. This high knowledge value was obtained considering that students in the health sector have a fairly close relationship with the pandemic situation. Medical students indirectly play a role in handling COVID-19 cases, where medical students participate in providing health education including COVID-19 to their families or communities. This can happen indirectly, such as providing an explanation when family or people around ask about COVID-19, so medical students tend to be active and more critical in responding to information related to COVID-19. Medical students who are in the health field tend to be more easily exposed to information and issues about health. At the Udayana University Faculty of Medicine, COVID-19 material is part of learning in the classroom. The effectiveness and efficiency of learning in the classroom also affects the level of student knowledge, where after two years of the pandemic, students are getting used to hybrid learning methods.[21]

This study is in line with the results reported by Oktaviannoor et al.,[9] Lack of knowledge is a risk factor for stigma (2.13 times greater) in sufferers of COVID-19. Research by Lutfiana reports that there is a correlation between the level of knowledge and stigma about COVID-19 of -0.438. Obtained a sufficient or moderate correlation, with a negative relationship. This relationship indicates that high knowledge means a low stigma value, and vice versa. The relationship is in the moderate category even though the community has high knowledge regarding COVID-19, but the community still has an excessive fear of contracting it. In college students, a high level of knowledge shows a positive relationship with positive attitudes towards COVID-19 including not giving negative stigma to people infected with COVID-19.[21]

Rahman et al., reported the opposite results, that there was no relationship between the level of knowledge about COVID-19 and the stigma of the Yogyakarta community towards people who come into contact with COVID-19. The author explained that this was due to a misunderstanding of information related to COVID-19. For example, the call to keep a distance is misinterpreted as staying away from people who come into contact with COVID-19. So that a good understanding is needed regarding the information obtained.[10]

Overview of Stigma Against COVID-19

Stigma is negative thoughts, views and beliefs that a person gets from their environment. Stigma can be in the form of labelling, stereotypes, separation and discrimination that can affect the individual as a whole. In the context of the world of health, stigma is a negative association related to people who have a disease, especially if the disease is considered contagious. High stigma can be caused by a lack of information regarding the mode of transmission and the natural course of the disease. Stigma can appear in COVID-19, both towards sufferers, health workers, the mass media, and towards oneself.[7]

The factors that form this stigma, according to Rahmawati et al., are several factors that lead to the formation of a stigma in society, including: a) Knowledge, lack of knowledge about the course of a disease or transmission of a disease such as the course and transmission of COVID-19, and also the inability to sort out correct information or inaccurate information causes society to generate negative thoughts or stigma towards sufferers; b) Perception, perception can influence the emergence of stigma, because a person's perception of a disease or COVID-19 is already negative, so society considers all people infected with COVID-19 to be the same. The same in the sense that it will spread quickly, all COVID-19 patients will die quickly, these thoughts will continue to lead to a negative opinion of COVID-19 sufferers; and c) The environment is everything that exists around the individual, both from the physical, biological and social environment. This environment has an influence on a process of entering knowledge of individuals who are in that environment. Knowledge in the environment occurs because of a reciprocal interaction or not, this will be responded to as knowledge by each individual.[22]

Another study by Roelen et al., mentioned the factors that drive stigma against COVID-19, one of which is a lack of information and misunderstandings related to this disease. Like, there is a false conspiracy with the claim that this pandemic is a planned event. This is also related to technological developments, where the internet and social media are sources of information on COVID-19, often of low quality. Stigma is also caused by a lack of understanding regarding the mode of transmission and treatment of COVID-19.[23]

This research shows that there is a high stigma towards COVID-19 by 16.7% of respondents. The existence of a bad stigma against COVID-19 by medical students was also reported by Khasawneh et al.,. This study shows that 1/3 of students choose to hide their disease status from their closest people if they are exposed to COVID-19, and there are still 4.5% of medical students who want to avoid isolation if they are infected with COVID-19.[24]

Stigma was mostly stated by respondents in the statement that COVID-19 is a punishment, people who are infected are afraid to tell themselves they have the disease, and respondents are afraid of contracting the disease from health workers they meet on the street or at home. The emergence of individual stage stigma where a person gets stigma through social and cognitive psychological processes such as feeling anxious about the disease COVID-19 which is still relatively new. So that someone is afraid to tell that he is infected with COVID-19. A study by Sotgiu and Dobler, states that people change their actions because they are afraid of being discriminated against. These measures include avoiding testing for SARS-CoV-2, ostracizing infected people, and some sufferers feeling ashamed and self-rejecting. People who are stigmatized by COVID-19 feel unable to participate actively in society.[25]

The reason most medical students have low stigma is due to a good understanding of the transmission, prevention and treatment of COVID-19. Medical students have received special material related to COVID-19 which they may later encounter at the professional level. Of course, during the two years that this pandemic has been running, experience and knowledge have arisen that indirectly benefit medical students and the public in general. This understanding reduces the concerns and fears of students and the public about COVID-19, so there is no need to discriminate against sufferers, health workers, even self.

Relationship between Knowledge Level of COVID-19 and Student Stigma related to COVID-19

Stigma is associated with a lack of knowledge about how COVID-19 spreads, its handling and prevention. A stigma arises because of a need to blame someone, fear of morbidity and mortality, and rumors and myths that are spread related to a lack of knowledge regarding COVID-19. This research shows that there is a significant relationship between the level of knowledge and student stigma against COVID-19. This result is also supported by several other research results. Research by Siregar et al., on the people of Medan City shows that there is a significant relationship between the level of knowledge and community stigma about COVID-19, with the majority of the community having good knowledge and low stigma. A study in China of 1,212 respondents also obtained similar results, found a negative correlation between stigma against people with COVID-19 and level of knowledge ($p < 0.001$), where misunderstandings about COVID-19 correlated with stigmatization.[26] Research by Oktaviannoor et al., shows that poor knowledge has a 2.13 times higher risk of having a stigma against COVID-19 patients. These results were also verified in studies of infectious diseases and other mental disorders. Research related to knowledge of HIV/AIDS and the stigma against PLHIV also shows a significant relationship. Similar results were also obtained regarding the stigma against people with mental disorders (ODGJ). [9] In this study, it was found that the level of student knowledge about COVID-19 was very good, so that they had a low tendency to negatively stigmatize COVID-19.

So in this case it can be said that knowledge is one of the factors that determine the stigmatization of society against a disease. The stigma causes more fear and anger. This makes people tend to hide their illness and motivation to seek health care decreases. In other words, stigma impedes controlling the spread of the epidemic. Everyone can participate in ending the stigma associated with COVID-19 by understanding the facts and disseminating these facts to their surroundings. It is necessary to increase the provision of accurate information, increase access to information, convey information that is easy to understand and use simple language to increase public knowledge. Furthermore, increased understanding correlates with a decrease in social stigma towards both the disease and COVID-19 patients. [9]

Research Limitations

The research was carried out during a pandemic which resulted in the administration of questionnaires using the Googleform model which were sent through force groups, so that researchers could not directly monitor the process of filling out the questionnaires.

V. CONCLUSION

The conclusion in this study is that the majority (64.6%) of Unud medical students' knowledge level about COVID-19 is categorized as having high knowledge, the stigma of Unud medical students towards COVID-19 is obtained by the majority (78.1%) in the low category, and there is a relationship significant between the level of knowledge and student stigma against COVID-19.

REFERENCES

[1] Zhou G, Chen S, Chen Z. Advances in COVID-19: the virus, the pathogenesis, and evidence-based control and therapeutic strategies. Frontiers of Medicine. 2020 Apr;14(2):117-25.

[2] Khrisnan, V., Sochlkrider, M., Wilson, K. Diagnosis and Management of COVID-19 Disease. *Am J Respir Crit Care Med*; 201: 19-22. 2020.

[3] Djalante R, Lassa J, Setiamarga D, Sudjatma A, Indrawan M, Haryanto B, Mahfud C, Sinapoy MS, Djalante S, Rafliana I, Gunawan LA. Review and analysis of current responses to COVID-19 in Indonesia: Period of January to March 2020. Progress in disaster science. 2020 Apr 1;6:100091.

[4] Yanti B, Mulyadi E, Wahiduddin W, Novika RG, Arina YM, Martani NS, Nawan N. Community knowledge, attitudes, and behavior towards social distancing policy as prevention transmission of COVID-19 in indonesia. Indonesian Journal of Health Administration (Jurnal Administrasi Kesehatan Indonesia). 2020 Jun 17;8:4-14.

[5] Ramaci T, Barattucci M, Ledda C, Rapisarda V. Social stigma during COVID-19 and its impact on HCWs outcomes. Sustainability. 2020 May 8;12(9):3834.

[6] Alzoubi H, Alnawaiseh N, Al-Mnayyis AA, Abu-Lubad M, Aqel A, Al-Shagahin H. COVID-19-knowledge, attitude and practice among medical and non-medical University Students in Jordan. J Pure Appl Microbiol. 2020 Mar 31;14(1):17-24.

[7] Bhattacharya P, Banerjee D, Rao TS. The "untold" side of COVID-19: Social stigma and its consequences in India. Indian journal of psychological medicine. 2020 Jul;42(4):382-6.

[8] Duan W, Bu H, Chen Z. COVID-19-related stigma profiles and risk factors among people who are at high risk of contagion. Social Science & Medicine. 2020 Dec 1;266:113425.

[9] Oktaviannoor H, Herawati A, Hidayah N, Martina M, Hanafi AS. Pengetahuan dan stigma masyarakat terhadap pasien Covid-19 dan tenaga kesehatan di Kota Banjarmasin. Dinamika Kesehatan: Jurnal Kebidanan Dan Keperawatan. 2020 Jul 15;11(1):98-109.

[10] Rahman NE, Tyas AW, Nadhilah A. Hubungan pengetahuan tentang covid-19 terhadap sikap stigma masyarakat pada orang yang bersinggungan dengan covid-19. Share: Social Work Journal. 2020;10(2):209-15.

[11] Putri NP, Wurjanto MA, Kusariana N, Udijono A. GAMBARAN PENGETAHUAN TERHADAP COVID-19 BERDASARKAN JENIS KELAMIN PADA MAHASISWA FAKULTAS KESEHATAN MASYARAKAT (Studi pada Mahasiswa Fakultas Kesehatan Masyarakat Universitas Diponegoro Angkatan 2020). Jurnal Kesehatan Masyarakat (Undip). 2022 May 30;10(3):326-9.

[12] Alfikrie F, Akbar A, Anggreini YD. Pengetahuan dan sikap mahasiswa dalam pencegahan covid-19. Borneo Nursing Journal (BNJ). 2021 Jan 29;3(1):1-6.

[13] Berman AT, Snyder S, Frandsen G. Kozier & Erb's Fundamentals of Nursing: Concepts, Process, and Practice (10th) Edition. MACMILLAN HEINEMANN; 2015 Jan 15.

[14] Ramaci T, Barattucci M, Ledda C, Rapisarda V. Social stigma during COVID-19 and its impact on HCWs outcomes. Sustainability. 2020 May 8;12(9):3834.

[15] Neferi A. Hubungan Antara Pengetahuan Tentang Hiv Dan Aids Dengan Respon Masyarakat Terhadap Odha. Skripsi Fakultas Ilmu Sosial Dan Ilmu Politik Universitas Lampung. 2016.

[16] Adli I, Widyahening IS, Lazarus G, Phowira J, Baihaqi LA, Ariffandi B, Putera AM, Nugraha D, Gamalliel N, Findyartini A. Knowledge, attitude, and practice related to the COVID-19 pandemic among undergraduate medical students in Indonesia: A nationwide cross-sectional study. PloS one. 2022 Jan 21;17(1):e0262827.

[17] Usman U, Budi S, Sari DN. Pengetahuan dan sikap mahasiswa kesehatan tentang pencegahan COVID-19 di Indonesia. Jurnal Ilmu Keperawatan Dan Kebidanan. 2020 Sep 9;11(2):258-64.

[18] Peng Y, Pei C, Zheng Y, Wang J, Zhang K, Zheng Z, Zhu P. A cross-sectional survey of knowledge, attitude and practice associated with COVID-19 among undergraduate students in China. BMC public health. 2020 Dec;20(1):1-8.

[19] Salman M, Mustafa ZU, Asif N, Zaidi HA, Hussain K, Shehzadi N, Khan TM, Saleem Z. Knowledge, attitude and preventive practices related to COVID-19: a cross-sectional study in two Pakistani university populations. Drugs & Therapy Perspectives. 2020 Jul;36(7):319-25.

[20] Chesser A, Drassen Ham A, Keene Woods N. Assessment of COVID-19 knowledge among university students: implications for future risk communication strategies. Health Education & Behavior. 2020 Aug;47(4):540-3.

[21] Rompis AY, Sandra S, Wulandari PA, Dewi NN. Gambaran Tingkat Pengetahuan, Sikap dan Tindakan terhadap COVID-19 pada Mahasiswa Sarjana Kedokteran dan Profesi Dokter Angkatan 2018-2019 Fakultas Kedokteran Universitas Udayana. Jurnal Kedokteran Syiah Kuala. 2021 Dec 24;21(3).

[22] Rahmawati AP, Suryoputro A, Shaluhiyah Z. ANALYSIS OF ADOLESCENTS NEEDS IN UTILIZING HEALTH SERVICES IN THE PANDEMIC COVID-19 IN SEMARANG CITY. International Journal of Health, Education & Social (IJHES). 2021 May 31;4(5):42-53.

[23] Roelen K, Ackley C, Boyce P, Farina N, Ripoll S. COVID-19 in LMICs: the need to place stigma front and centre to its response. The European Journal of Development Research. 2020 Dec;32(5):1592-612.

[24] Khasawneh AI, Humeidan AA, Alsulaiman JW, Bloukh S, Ramadan M, Al-Shatanawi TN, Awad HH, Hijazi WY, Al-Kammash KR, Obeidat N, Saleh T. Medical students and COVID-19: knowledge, attitudes, and precautionary measures. A descriptive study from Jordan. Frontiers in public health. 2020 May 29;8:253.

[25] Sotgiu G, Dobler CC. Social stigma in the time of coronavirus disease 2019. European Respiratory Journal. 2020 Aug 1;56(2).

[26] Siregar BN, Sitanggang EJ, Hasibuan P, Sufida S. Hubungan Pengetahuan dengan Stigma Masyarakat tentang COVID-19 di Kota Medan. Nommensen Journal of Medicine. 2022 Feb 28;7(2):47-50.