



Sociodemographics, Knowledge, Attitudes, and COVID-19 Prevention Measures in Indonesia

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Article Info

Article History:

Submitted July 2023

Accepted June 2024

Published: April 2025

Keywords:

Sociodemographics;
Knowledge; Attitudes

DOI

<https://doi.org/10.15294/kemas.v20i4.31232>

Abstract

The COVID-19 pandemic provides many lessons for all countries to prepare the health system and society when an outbreak of a disease occurs. From COVID-19, we learn that community participation in preventing COVID-19 is mandatory. This study aims to determine the relationship between sociodemographics, knowledge, and attitudes toward prevention measures for COVID-19. A cross-sectional study was conducted in the Mergangsan subdistrict, Yogyakarta City, Indonesia, in February-April 2022. A structured questionnaire was used to collect information from 350 participants. Univariate and bivariate analysis was performed to analyze the data. Our study found that age, gender, level of education, and attitude were significantly associated with COVID-19 prevention measures. Men-employed people and people with low knowledge and attitudes had a higher possibility of having poor prevention measures towards COVID-19. Considering the result of this study, increasing community participation in COVID-19 prevention measures requires interventions and programs tailored to specific layers by targeting men, working groups, and insufficient knowledge and behavior towards COVID-19.

Introduction

Assessing association is essential in COVID-19 because this disease spreads relatively quickly. At the same time, more than the knowledge base is needed as evidence to formulate programs and decisions that are effective and efficient. Prevention campaign programs held sporadically without being preceded by sufficient studies are feared not to be on target and are a waste of resources. COVID-19, caused by the coronavirus (SARS-CoV-2), is easily transmitted by air from person to person through droplets that flow from the nose or mouth when someone with this virus coughs or exhales. A person can become infected with a person with COVID-19 if they accidentally inhale droplets from an infected person (World Health Organization, 2020b). Therefore, in situations where the virus cannot kill, changes in human behavior are essential to

avoid transmission, such as social distancing and maintaining personal hygiene (West *et al.*, 2020).

Since the start of the outbreak, the global pandemic has exceeded 97.8 million cases worldwide, with over two million deaths as of January 21, 2021 (Gebretsadik, Gebremichael and Belete, 2021)(Tu *et al.*, 2022). In Indonesia, COVID-19 cases were first reported on March 02, 2020; as of June 23, 2020, 47,897 confirmed positive cases. The Special Region of Yogyakarta (DIY) recorded its first case on March 15, 2020. As of June 10, 2020, 250 people have been reported to have contracted COVID-19. Furthermore, the Government DIY determined the emergency period from March 20 to May 31, 2020. However, considering the circumstances, the emergency policy was extended until June 30. Entering the first week of June, positive confirmed cases

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in the Special Region of Yogyakarta have not decreased. Meanwhile, in June, it was noticed that the development of cases in the world and Indonesia was the highest case period. At that time, the development of cases in the DIY was still challenging to predict regarding how and when the direction could be seen. One of the districts in Yogyakarta that reached the high case in DIY during that period was Yogyakarta City, which consists of 14 subdistricts.

Among the 14 subdistricts, the Mergangsan subdistrict was categorized as having a high incidence of COVID-19. Based on data from the Mergangsan Health Center for January- July 2021, the total number of cases for that period was more than 1,500. This district is divided into three villages: Brontokusuman, Keparakan, and Wirogunan. The Indonesian government has released some policies and efforts to break the chain of COVID-19 transmission called Large-Scale Social Restrictions (PSBB), or partial lockdown and social distancing movements (Herdiana, 2020)(Andriani, 2020). This policy implies that all residents should follow the daily health protocol. The level of compliance with this policy is influenced by intrinsic knowledge, attitude, and other characteristics. Still, of all the things that affect it, knowledge becomes the foundation for changing one's behavior. This knowledge can increase the perception of risk against COVID-19, which leads to preventive actions (Harper C *et al.*, 2020) (Pakpour and Griffiths, 2020). People with good knowledge are expected to implement good practices and precautions (Sulistyawati *et al.*, 2021). However, some researchers found that someone knowledgeable will automatically have good prevention practices. Considering the background, this research aimed to assess the relationship between sociodemographics, knowledge, and attitudes with prevention measures toward COVID-19. This research is essential as a lesson learned during the pandemic to develop a proper intervention and program as part of preparedness.

Method

The theory adopted in this study is the relationship between individual characteristics, knowledge, and attitude toward practice,

which has been used previously in studies about mental health (Rodriguez-Soto, Bernal, and Cumba-Avilés, 2015) and the relationship between knowledge and attitudes toward dengue prevention (Sulistyawati *et al.*, 2019). This research hypothesizes whether there is a relationship between sociodemographics, knowledge, and attitude toward the practice of preventing COVID-19. This analytic observational study used a cross-sectional approach and was conducted in the Mergangsan subdistrict from February to April 2022. The population of this study was all residents of Mergangsan District, Yogyakarta City, aged 18 to 65. According to the Mergangsan subdistrict office, the population was 21,483, distributed in 3 villages. We recruited the respondents by randomly sampling people who met our criteria. The sample was calculated using a cross-sectional formula, resulting in 350 respondents being included in this study.

This research has two variables: 1) dependent variable: COVID-19 prevention measures, and 2) independent variable: sociodemographics, level of knowledge, and attitudes. To collect all the information needed, we used a pre-tested questionnaire that is divided into some parts: sociodemographic characteristics (age, gender, education, and occupation), knowledge (10 questions), attitudes (3 questions), and prevention measures (13 questions). The knowledge question was scored 1 for a correct answer and 0 for an incorrect answer; for attitude, an agree response was scored 1, and a disagree was scored 0. For preventive measures, the question was scored 2, 1 and 0 for always, seldom, and never response, respectively. All questionnaire was set up in Google form; for respondents who needed help to fill them in, the researcher helped to input their answers. Data were analyzed using the chi-square test, considering a 95% confidence level or a significant level (α) of 5%. Respondents received information about the research and were informed that participation was voluntary and that they had the right to quit time without penalty. People who agreed to join this research were asked to sign the informed consent. The study was approved by the Ethical Review Board of Ahmad Dahlan University, Yogyakarta, Indonesia (ethical approval code:

Table 1. Distribution of Research Respondents

Characteristic	Frequency (n)	Percentage (%)
Age Group (Years)		
18-29	125	35.71
30-49	153	43.71
≥50	72	20.57
Gender		
Male	163	46.57
Female	187	53.43
Level of education		
Basic education (primary and junior high school)	104	29.7
Secondary education (senior high school)	139	39.7
Higher education (university)	107	30.6
Occupation status		
Employed	266	76.00
Unemployed	84	24.00
Knowledge towards COVID-19		
Poor	127	36.29
Good	223	63.71
Attitudes towards COVID-19		
Poor	62	17.71
Good	288	82.29
Prevention measures for COVID-19		
Poor	154	44.00
Good	196	56.00

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Result and Discussion

Table 1 shows our respondent characteristics. A total of 350 respondents participated in our study, the majority (43.71%) aged 30-49. More than half (53.43%) of the respondents were female. Among the participants, the majority (39.70%) hold a middle education. Most of our respondents were employed (76%). Regarding knowledge, attitude, and prevention measures towards COVID-19, most of our respondents (63.71%) were classified as good, with 63.71%, 82.29%, and 56%, respectively.

Knowledge of this research was assessed through (True/False) questions. Table 2 shows the percentage of each respondent's responses by question. Among the 10 knowledge questions, we found outliers in the response

question about "Children and youth do not need to take precautions against COVID-19," in which the majority (68.3%) of the respondents reported this question false.

Table 3 summarizes respondents' attitudes toward COVID-19. More than half (74.3%) of respondents agreed that it could be controlled. The majority (76%) agreed that Indonesia could control it. Lastly, most respondents (73.1%) agreed that the Indonesian government could handle it well.

Thirteen questions were posed to the respondents to measure the prevention of COVID-19. All questions were favorable – the "always" answer received the higher score. The complete response is presented in Table 4. Most respondents (52.3%) reported consistently washing their hands with soap using running water many times daily. Regarding wearing masks, 65.1% of respondents said they always

Table 2. Respondent Response to COVID-19 Knowledge Question

Knowledge questions	Response			
	True		False	
	n	%	n	%
The main clinical symptoms of people infected with COVID-19 are fever, tiredness, dry cough, and muscle aches (True)	263	75.1	87	24.9
There is currently no effective cure for COVID-19, but early detection and treatment can help most people who are infected recover (True)	235	67.1	115	32.9
Not everyone infected with COVID-19 becomes serious; only children, the elderly, and people with chronic illnesses (True)	191	54.6	159	45.4
People with COVID-19 cannot transmit the virus to others if they do not have a fever (False)	190	54.3	160	45.7
The COVID-19 virus spreads through the respiratory droplets of an infected person (True)	235	67.1	115	32.9
Using a mask can prevent transmission of the COVID-19 virus (True)	307	87.7	43	12.3
One way to avoid COVID-19 is to use a hand sanitizer or wash your hands with soap using running water (True)	297	84.9	53	15.1
Children and youth do not need to take precautions against COVID-19 (False)	111	31.7	239	68.3
To prevent transmission of COVID-19, one must avoid crowds and avoid using public transportation (True)	277	79.1	73	20.9

Table 3. The Respondent's Response Related to Attitude Toward COVID-19

Attitude questions	Response			
	Agree		Disagree	
	n	%	n	%
I agree that COVID-19 can be controlled (Favorably)	260	74.3	90	25.7
I believe Indonesia can control COVID-19 (Favorably)	266	76.0	84	24.0
The Indonesian government is handling COVID-19 well (Favorably)	256	73.1	94	26.9

Data Source: Primary data, 2022

Table 4. Percentage of Response to the Prevention Measure COVID-19

Prevention measure question	Response					
	Always		Seldom		Never	
	n	%	n	%	n	%
I wash my hands with soap using running water many times a day	183	52.3	162	46.3	5	1.4
I always monitor my temperature when I feel unwell	114	32.6	174	49.7	62	17.7
I maintain a nutritional balance by eating more vitamins and fruit	135	38.6	148	42.3	67	19.1
I exercise regularly	99	28.3	183	52.3	68	19.4
I use hand sanitizer	146	41.7	178	50.9	26	7.4
I wear a mask when I leave the house	228	65.1	109	31.1	13	3.7
I am traveling by private vehicle	149	42.6	158	45.1	43	12.3
I choose to stay at home during this pandemic	102	29.1	175	50.0	73	20.9
I avoid touching my eyes, nose, and mouth when my hands are dirty	147	42.0	156	44.6	47	13.4
I try to avoid crowds	125	35.7	174	49.7	51	14.6
I avoid shaking hands	113	32.3	183	52.3	54	15.4
I'm always looking for the latest information regarding COVID-19	94	26.9	170	48.6	86	24.6
I visit health facilities when I feel unwell during the COVID-19 pandemic	96	27.4	155	44.3	99	28.3

Data Source: Primary data, 2022

Table 5. Relationship between Sociodemographic, Knowledge, and Attitudes with COVID-19 Prevention Measures

Variable	COVID-19 prevention measure				Total		PR 95% CI	
	Poor		Good					
	n	%	n	%	n	%		
Age								
18-29 years	49	39.2	76	60.8	125	100	-	0.01
30-49 years	62	40.5	91	59.5	153	100		
≥50 years	43	59.7	29	40.3	72	100		
Gender								
Male	82	50.3	81	49.7	163	100	1.307 (1.031-1.656)	0.035
Female	72	38.5	115	61.5	187	100		
Level of education								
Basic	68	65.4	36	34.6	104	100	-	<0.001
Secondary	67	48.2	72	51.8	139	100		
Higher	19	17.8	88	82.8	107	100		
Occupation status								

Employed	106	39.8	160	60.2	266	100	0.697	
Unemployed	48	57.1	36	42.9	84	100	(0.550-0.884)	0.008
Knowledge category								
Poor	79	62.2	48	37.8	127	100	1,850	<0.001
Good	75	33.6	148	66.4	223	100	(1.471-2.325)	
Attitude category								
Poor	46	74.2	16	25.8	62	100	1.978	
Good	108	37.5	180	62.5	288	100	(1.605-2.439)	<0.001

Data Source: Primary data, 2022

wear masks, mainly when leaving their houses.

Table 5 summarizes the association between sociodemographics, knowledge, and attitudes with COVID-19 prevention measures. We found that our variables (age, gender, education, occupation, knowledge, and attitude toward COVID-19) are significantly associated with prevention measures for COVID-19. We found that males have a chance to have poor prevention measures towards COVID-19 (1.307 times higher) compared to females ($P=0.01$). For occupation, employed people have an opportunity to have inadequate prevention measures for COVID-19, 0.697 times higher than unemployed people ($P=0.008$). People with poor knowledge have a chance of having insufficient prevention measures related to COVID-19 1.850 times higher than people with good knowledge ($P<0.001$). A poor attitude can potentially have a more likely poor COVID-19 prevention measure 1.978 times higher than people with a good attitude ($P<0.001$).

COVID-19 spread rapidly across the globe, raising concern and awareness on preventing transmission. Many approaches are taken to promote the prevention of these diseases, such as COVID-19 immunization and changes in behavior. However, because of the rapid transmission speed, many residents are shocked and unprepared for the action of the COVID-19 program. Accordingly, this study aims to assess the relationship between sociodemographics, level of knowledge, and attitudes with COVID-19 prevention measures in Mergangsan District, Yogyakarta City. The mentioned variables are necessary as input for decision-makers in preparing appropriate campaigns and programs that should be effective and efficient in reaching the target.

This research found a relationship between age and COVID-19 prevention measures ($P\text{-value} = 0.01$). The age 36-45 years are categorized as mature age, considering that people at this age will have good patterns of understanding and thinking so that their knowledge will also be better for making decisions. This finding is in line with the previous studies, which prove that there is a relationship (Sulistyawati *et al.*, 2021), (Wolfe, Sirota, and Clarke, 2021) (Al-Hanawi *et al.*, 2020).

Regarding gender, our research indicated a significant relationship between gender and COVID-19 prevention measures, in which males have a 1.307 times chance of having poor COVID-19 prevention measures compared to females. Previous research reported that women tend to better understand preventing COVID-19 than men (Pietrangelo, 2020). It could be because women have more time to read or discuss the prevention of COVID-19 with their environment, and, during the pandemic, COVID-19 women are at the center of the fight against this disease, for example, as health workers (The Organization for Economic Cooperation and Development (OECD), 2020). Previous research said females tend to pay more attention to environmental conditions and health (Norgaard and York, 2005). During the implementation of PSBB in Indonesia, earlier research reported a relationship between gender and public compliance with the Large-Scale Social Restrictions (PSBB) policy in Jakarta, Indonesia (Rosha *et al.*, 2021). The policy about women's engagement in COVID-19 prevention was also based on previous research that stated that females have a better reaction to COVID-19 than males (Paramita *et al.*, 2021), (Ciarambino,

Para, and Giordano, 2021).

Education is developing character and expertise inside and outside school (Ratnasari, 2019). Apart from formal education, it is also available through other people or the mass media, including magazines, television, newspapers, radio, etc. People with a low education do not necessarily have low knowledge either. However, another opinion explains that higher education makes a person more likely to receive information quickly, increasing his knowledge. This study shows a relationship between education level and COVID-19 prevention measures (P -value <0.001). This study differed from earlier studies in finding no association between education level and COVID-19 preventive behavior (Amelia *et al.*, 2020). In China, it was confirmed that health education contributes to the student's knowledge and behavior of infectious diseases (Wang *et al.*, 2018).

Working is an activity carried out by respondents to earn income to fulfill their needs, which is why occupation is an essential factor and one of the best indicators of a person's way of life, including health (Fujishiro, Xu and Gong, 2010). The results of the study show that there was a significant relationship between occupation and the precautions against COVID-19. Working people have a 69.7% chance of poor COVID-19 prevention measures compared to those who do not. Our finding is in line with previous research, which found a relationship between occupation and the prevention of transmission of COVID-19 (Sarailoo *et al.*, 2021). According to a study in Iran, many reasons for people working in high-risk jobs to not comply with health protocol include a lack of a supportive environment, misconceptions about health, and difficulty accessing health supplies (Soleimanvand Azar *et al.*, 2021).

The results of this study indicate a significant relationship between knowledge and precautions against COVID-19; people with poor knowledge will also have the opportunity to take poor prevention measures. Knowledge and behavior are two interconnected things; people with good knowledge will positively affect their behavior and attitude. Public knowledge about the coronavirus can be

explained as a way of prevention, treatment, and complications (Mona, 2020). Some other research found similar findings, showing a significant relationship between knowledge and behavior in preventing COVID-19. During the COVID-19 pandemic, the spread of information in the mass media influenced disease prevention (Rachmawati, Suryadi and Diajeng, 2021). The mass media plays a vital role in positive and negative COVID-19 propaganda. The spread of hoaxes can impede preventive behavior, but the media also provides a wealth of information to counteract this misinformation. This teaches that, in the digital age, social media plays a role in public health for health promotion, health interventions, health campaigns, medical education, and disease outbreak surveillance (Kanchan and Gaidhane, 2023), (Chen and Wang, 2021).

Attitudes are usually always associated with behavior within normal limits, which are responses to environmental stimuli. This study's results indicate a significant relationship between attitudes and precautions against COVID-19. People with poor attitudes are 1.978 times more likely to take poor COVID-19 precautions than those with good attitudes. Belief is a supporting factor that develops an attitude and encourages people to comply with regulations such as the Large-Scale Social Restrictions policy (Rosha *et al.*, 2021). Our research follows previous research that found a relationship between attitude and the prevention of transmission of COVID-19 and a relationship between attitude and the COVID-19 health protocol (Wassif and El Din, 2022), (Retnaningsih *et al.*, 2020).

Our additional finding was related to most of our respondent's incorrect responses about the importance of children and youth not needing to take precautions against COVID-19. Most of them should have acknowledged that this group must comply with prevention measures. This is dangerous; indeed, the WHO says that people aged 80 years or older with comorbidities have a higher risk of getting COVID-19 (WHO, 2020a). However, those outside the group can still be exposed to COVID-19. So, if this group meets high-risk groups, it will pose a risk of unmaintained exposure. In addition, it is essential to maintain

health protocols for children and adolescents because this group can potentially be the asymptomatic case though they are exposed to COVID-19 (Götzinger and Strenger, 2022), (Garagiola et al., 2022). We must consider this study's limitations in interpreting the results presented here. Among other things, the respondents self-reported data, so we cannot measure the actual implementation of this behavior, which is mainly for prevention measures. However, this research is still relevant in describing the general situation that occurs in society.

Conclusion

The study's results showed a significant relationship between sociodemographic knowledge and attitudes toward COVID-19 prevention. Increasing community participation in COVID-19 prevention measures requires interventions and programs tailored to specific layers, targeting men, working groups, and insufficient knowledge and behavior toward COVID-19.

References

- Al-Hanawi, M.K., Angawi, K., Alshareef, N., Qattan, A.M.N., Helmy, H.Z., Abudawood, Y., Alqurashi, M., Kattan, W.M., Kadasah, N.A., Chirwa, G.C., & Alsharqi, O., 2020. Knowledge, Attitude and Practice Toward COVID-19 Among the Public in the Kingdom of Saudi Arabia: A Cross-Sectional Study. *Frontiers in Public Health*, 8(May), pp.1–10.
- Amelia, R., Harahap, J., Wahyuni, A.S., Fujiati, I.I., Yunanda, Y., Eyanoer, P.C., Wijaya, H., & Ariga, R.A., 2020. Analysis of Community Behavior in Coronavirus Disease-19 Prevention in Medan. *Open Access Macedonian Journal of Medical Sciences*, 8, pp.382–386.
- Andriani, H., 2020. Effectiveness of Large-Scale Social Restrictions (PSBB) toward the New Normal Era during COVID-19 Outbreak: a Mini Policy Review. *Journal of Indonesian Health Policy and Administration*, 5(2), pp.61–65.
- Chen, J., & Wang, Y., 2021. Social Media Use for Health Purposes: Systematic Review. *Journal of Medical Internet Research*, 23(5).
- Ciarambino, T., Para, O., & Giordano, M., 2021. Immune System and COVID-19 by Sex Differences and Age. *Women's Health*, 17.
- Fujishiro, K., Xu, J., & Gong, F., 2010. What Does "Occupation" Represent as an Indicator of Socioeconomic Status?: Exploring Occupational Prestige and Health. *Social Science & Medicine*, 71(12), pp.2100–2107.
- Garagiola, E.R., Lam, Q., Wachsmuth, L.S., Tan, T.Y., Ghali, S., Asafo, S., & Swarna, M., 2022. Adolescent Resilience During the COVID-19 Pandemic: A Review of the Impact of the Pandemic on Developmental Milestones. *Behavioral Sciences*, 12(7).
- Gebretsadik, D., Gebremichael, S., & Belete, M.A., 2021. Knowledge, Attitude and Practice Toward Covid-19 Pandemic Among Population Visiting Dessie Health Center for Covid-19 Screening, Northeast Ethiopia. *Infection and Drug Resistance*, 14, pp.905–915.
- Götzinger, F., & Strenger, V., 2022. The Role of Children and Young People in the Transmission of SARS-CoV-2. *Pediatric Infectious Disease Journal*, 41(4), pp.E172–E174.
- Harper, C., Satchell, L.P., Fido, D., Latzman, R.D., 2020. Functional Fear Predicts Public Health Compliance in the COVID-19 Pandemic. *International Journal of Mental Health and Addiction*, 27(1), pp.1–14.
- Herdiana, D., 2020. Social Distancing: Indonesian Policy Response to the Corono Virus Disease 2019 (COVID-19). *Jurnal Ilmu Administrasi*, 16(1), pp.93–110.
- Kanchan, S., & Gaidhane, A., 2023. Social Media Role and Its Impact on Public Health: A Narrative Review. *Cureus*, 2023.
- Mona, N., 2020. Konsep Isolasi Dalam Jaringan Sosial Untuk Meminimalisasi Efek Contagious (Kasus Penyebaran Virus Corona Di Indonesia). *Jurnal Sosial Humaniora Terapan*, 2(2), pp.117–125.
- Norgaard, K., & York, R., 2005. Gender Equality and State Environmentalism. *JSTOR*, 19(4), pp.506–522.
- The Organization for Economic Cooperation and Development (OECD), 2020. *Women at the Core of the Fight Against COVID-19 Crisis*.
- Pakpour, A., & Griffiths, M., 2020. The Fear of COVID-19 and Its Role in Preventive Behaviors. *Journal of Concurrent Disorders*, 2, pp. 58–63.
- Paramita, W., Rostiani, R., Winahjoe, S., Wibowo, A., Virgosita, R., & Audita, H., 2021. Explaining the Voluntary Compliance to COVID-19 Measures: An Extrapolation on the Gender Perspective. *Global Journal of*

- Flexible Systems Management*, 22.
- Pietrangelo, A., 2020. *Women Are Taking the COVID-19 Pandemic More Seriously Than Men*, *Healthline*.
- Rachmawati, S., Suryadi, I., & Diajeng, R., 2021. Receiving COVID-19 Messages on Social Media to the People of Semarang City. *Kesehatan Masyarakat KEMAS*, 17(2), pp.625–634.
- Ratnasari, W., 2019. Character Building in Education: A Proposed Theory for STAI's Economic Syari'ah Program. *AL-MUQAYYAD: Jurnal Ekonomi Syariah*, 1(1), pp.25–39.
- Retnaningsih, E., Nuryanto., Oktarina, R., Komalasari, O., & Maryani, S., 2020. The Effect of Knowledge and Attitude Toward Coronavirus Disease-19 Transmission Prevention Practice in South Sumatera Province, Indonesia. *Open Access Macedonian Journal of Medical Sciences*, 8(T1), pp.198–202
- Rodriguez-Soto, N., del C., Bernal, G., & Cumba-Avilés, E., 2015. The Role of Individual Characteristics, Knowledge, And Attitudes Toward the Use of Evidence-Based Practices Among Mental Health Providers in Puerto Rico. *Revista Puertorriqueña de Psicología*, 26(1), pp.122–134.
- Rosha, B.C., Suryaputri, I.Y., Irawan, I.R., Arfines, P.P., & Triwinarto, A., 2021. Factors Affecting Public Non-Compliance with Large-Scale Social Restrictions to Control COVID-19 Transmission in Greater Jakarta, Indonesia. *Journal of Preventive Medicine and Public Health*, 54(4), pp.221–229.
- Sarailoo, M., Matin, S., Vosoughi, M., Dargahi, A., Gholizadeh, H., Damavandi, M.R., Abbasi-Ghahramanloo, A., & Kamran, A., 2021. Investigating the Relationship Between Occupation and SARS-CoV2. *Work*, 68(1), pp.27–32.
- Soleimanvandiazar, N., Irandoost, S.F., Ahmadi, S., Xosravi, T., Ranjbar, H., Mansourian, M., & Lebni, J.Y., 2021. Explaining the Reasons for Not Maintaining The Health Guidelines to Prevent COVID-19 in High-Risk Jobs: A Qualitative Study in Iran. *BMC Public Health*, 21(1), pp.1–15.