ARAŞTIRMA / *Research Articles*

Survey on Community Awareness and Risk Perception on COVID-19 in Herat

Herat'da COVID-19 Hakkında Toplum Bilinci ve Risk Algılaması Üzerine Bir Araştırma

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ABSTRACT

Introduction: The aim of the study was to survey the level of awareness and perception of risk and protective behaviors caused by COVID-19 among adult population in Herat.

Methods: This descriptive study was conducted between 10th April to 8th May among 1081 citizens of 15 districts of Herat city, Afghanistan. Inclusion criteria were the people above 18 years old, understand Dari language very well, not having any mental problem, and not working at health institutions. Participants were selected using via convenience sampling.

Result: Almost everyone thinks that COVID-19 is a dangerous disease (99.8%) and it is important to wash hands with soap and water in order to prevent it (97.6%). But in case of social distance that should be 2 meters only (32.4%) and wear mask in community (73.5%) of the respondents answered correctly.

Conclusion: Our findings show the need for campaigns to increase the knowledge on COVID-19 in Herat.

Keywords: awareness, risk perception, COVID-19, Herat Afghanistan

ÖZ

Giriş: Bu çalışmanın amacı, Herat'taki yetişkin nüfus arasında CO-VID-19'un neden olduğu risk ve koruyucu davranışların farkındalık ve algı düzeylerini araştırmaktadır.

Yöntem: Bu tanımlayıcı çalışma, 10 Nisan- 8 Mayıs 2020 tarihleri arasında, Afganistan'daki Herat şehrinin 15 ilçesinde yaşayan ve 18-80 yaş aralığındaki 1081 vatandaşın, COVID-19'un neden olduğu risk ve koruyucu davranışların farkındalık ve algı düzeylerini araştırmak için yapılmıştır. Araştırmaya dahil edilme kriterleri, katılımcıların 18 yaş ve üstünde olması, Dari dilini iyi düzeyde anlaması, herhangi bir zihinsel problemi olmaması, sağlık kuruluşunda çalışmıyor. Katılımcılar, kolayda örnekleme yöntemiyle seçilmiştir.

Bulgular: Araştırmaya katılanların neredeyse tamamı, COVID-19'un tehlikeli bir hastalık olduğunu (%99,8) ve bu hastalığı kontrol etmek için ellerin su ve sabun ile yıkanmasının önemli olduğunu (%97,6) düşünmektedir. Katılımcıların %32,4'ü insanlar arasındaki sosyal mesafenin 2 metre olması gerektiği ve %73,5'i toplulukta maske takılması gerektiği ile ilgili soruları doğru olarak cevaplamıştır.

Sonuç: Bulgularımız, Herat'ta COVID-19 hakkındaki bilgileri artırmak için kampanyalara ihtiyaç olduğunu göstermektedir.

Anahtar Kelimeler: farkındalık, risk algısı, COVID-19, Herat Afganistan

Introduction

There is a new public health crisis threating the world, the Corona virus disease 19 (COVID-19).

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COVID-19 which is a disease caused by Novel corona virus 2019 also known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The virus originated in bats but and transmitted to humans through yet unknown intermediary animals in Wuhan, China. There have been almost 6,704,721 positive cases, 3,252,933 recovered and 393,257 deaths reported till now (5/6/2020 we should revise this numbers before submitting) (1-3)-

In December 2019 unexplained pneumonia case were initially reported in Wuhan, China. The pathogen named SARS-CoV-2 was isolated from the sample of lower respiratory tract of patients reported as COVID-19 positive cases. The disease which was started in China rapidly spread across

the world. On March 11 a pandemic situation has announced(4,5). Cases continued to increase exponentially. It is important to note that while the number of new cases has reduced in China, they have increased exponentially in other countries including Italy, France, United States of America, Iran (2-4,6).

The clinical features of COVID-19 are varied, ranging from asymptomatic state to ARDS (Acute Respiratory Distress Syndrome). The features which are common in most positive cases are fever, cough, sore throat, headache, fatigue, headache, myalgia and breathlessness (6).

The main transmission paths for SARS-CoV-2 are aerosol transmission, respiratory transmission and contact transmission. And its detectable time from air is 3 hours, from copper 4 hours, from cardboards 24 hours, from stainless steel 2-3 days, from plastic 3 days. The most effective ways of prevention from the disease washing hands, wearing mask in public places, avoiding physical contact and placing physical distance with the other people. Therefore, however public awareness is the most effective measurement to prevent the spread of the disease (7-12).

The first case in Herat was reported on 24th February. The numbers of COVID-19 positive patients in Herat is 3227 (2017 men and 1210 women [5/6/2020]) however it can be due to very limited number of people being tested every day (11). Fear of infection also raised among people and caused anxiety. An enormous number of refugees get back from Iran. The government of Islamic republic of Afghanistan has been working to raise the level of awareness through media and posters across the city to provide information on coronavirus. The main messages given in media were "hand hygiene", "social distance" and "stay at home"(13) . The aim of the study was to survey the level of awareness and perception of risk and protective behaviors caused by COVID-19 among adult population in Herat.

The study was conducted to understand community's awareness on COVID-19 as well as to find out the level of people`s perception due to the pandemic in Herat city.

Materials and Methods:
Study design, place and duration of study:
This descriptive study was conducted among 18-80 years old citizens of all of 15 districts of Herat city, Afghanistan. Herat is located in south west of the Afghanistan, and Heart city has a population of more than 632,206 people according to Statistics office of Afghanistan. Literacy rate among Afghanistan population is 43.0% (29.8% in women and 55.8% in men) (14-15).

Sample size was calculated using the sample calculation approach for prevalence studies with unknown universe ($n = \frac{t^2 p \varepsilon}{d^2}$) we assumed prevalence (p) was taken as 0.5 and "d" was taken as 0.003. The target sample size was found as 1068 people.

The sample was determined by using convenient sample selection method; but it was targeted to reach the distribution of age and gender of the interviewed participants as the same as the population pyramid of Afghanistan.

Data Collection Tool
The 31 items were grouped in 3 subscales in the questionnaire: the socio-demographic characteristics (9 items), the awareness questions (12 items) to measure volunteers' knowledge about how corona virus does spread and how to prevent from the virus, the questions on their behaviors (10 items) to measure which preventive measurement they accepted and implemented in their life style. After the questionnaire was build and a pilot study was conducted on 20 people to find out if there is any problem in our questionnaire.

Data Collection
In the study, 15 medical students, worked voluntarily to fill up the questionnaires. Medical school students were trained for 2 days on how to fill the questionnaire up by the researcher in Herat. Herat province consists of 15 districts and we have appointed one medical student for each district, so each medical school student was responsible to find out the volunteer participants in one district. Inclusion criteria was determined as the people above 18 years old, understand Dari language very well, being volunteer, not having any mental problem, and not working at health institutions. The data was collected through using face to face sur-

vey technique via tablets and IPads by the medical school students using personal hygiene protectors such as masks, visors, and gloves between 10th April to 8th May 2020.

Statistical Analysis
Statistical analysis was performed using IBM SPSS Statistics Version 23.0. Numeric variables were given as mean ± standard deviation (SD), median (1st quartile-3rd quartile), minimum and maximum and categorical variables were given as frequencies and percentages.

Total cumulative knowledge score was calculated using 10 multiple choice questions for each participant. One point was given for current answers and zero point were given for incorrect answers.

The goodness-of-fit test of numeric variables of normal distribution was determined using Shapiro Wilk test. Since the normality assumption did not hold, the comparisons between two independent groups and more than two independent groups in terms of total knowledge score was assessed using Mann Whitney U test and Kruskal Wallis test, respectively. When a significant difference was found in Kruskal-Wallis test, multiple comparisons were performed using Dunn test. A p-value of less than 0.05 was accepted as significant.

Ethical considerations
This research was approved by the Ghalib University ethics committee, protocol 31 dated 04/04/2020. In this research, the confidentiality of the shared features was emphasized and the basis of participation in the research was the volunteer sharing.

Results
The survey was conducted among 1081 participants; more than half of the participants (54.7%) were male; a greater proportion of respondents was in the age group 45 years and above (48.8%), 49.0% were never married and 45.5% were currently married, approximately half of the participants (46.3%) could only read and write or illiterate. Almost half of the participants were from the medium economic level of the community (49.9%). The percentage of economic status of those who were in great/good condition and who were in poor/bad condition were equal (25.1%).

12.5% of the participants had chronic diseases and 88.3% of the participants declared that they could access to health services **(Table 1).**

Table 1 Socio-demographic characteristics of the participants (n = 1081) (Herat, Afghanistan; 10 April-8 May 2020)

Socio-demographic characteristics	n	%
Sex		
Male	591	54.7
Female	490	45.3
Age (years)		
18-24	292	27.0
25-44	262	24.1
≥ 45	528	48.8
Marital status		
Never Married	530	49.0
Currently Married	492	45.5
Ever Married (Divorced, Widow, Living separately)	59	5.5
Education Level		
Illiterate	160	14.8
Just read and write	341	31.5
Primary school	309	28.6
Secondary school	73	6.8
High school	93	8.6
University	105	9.7
Economic Status		
Great/ Good	271	25.1
Average	539	49.8
Poor/Bad	271	25.1
Existence of any chronical disease		
Yes	135	12.5
No	946	87.5
Access to health services		
Yes	954	88.3
No	127	11.7

Participants were asked some information questions about COVID-19. Almost all of the participants stated that COVID-19 is a contagious disease (99.8%). The vast majority of the participants correctly knew that hands should be washed with soap and water (97.6%); 90.3% of the participants correctly answered the question "Does this disease transmits through infected hands touching the eyes?"; a higher percentage of the respondents said

Table 2. Knowledge about COVID-19 among the participants (n = 1081) (Herat, Afghanistan; 10 April-8 May 2020)

Knowledge on COVID-19	True		False	
	n	%	n	%
COVID-19 is a contagious disease	1079	99.8	2	0.2
Soap and water should be used to wash hands	1055	97.6	26	2.4
Disease transmits through infected hands touching the eyes	976	90.3	105	9.7
Transmission pathways of the corona virus	924	85.5	157	14.5
Avoiding participation in gatherings helps to prevent and control the spread of the disease	886	82.0	195	18.0
Traveling causes the spread of the virus	868	80.3	213	19.7
It is necessary to wear mask in community	795	73.5	286	26.5
Being quarantined is the best option if there is a contact with COVID-19 positive patient	670	62.0	411	38.0
The social distance should be 2 meters between people	350	32.4	731	67.6
Drinking and sleeping control the disease	224	20.7	857	79.3

that the corona virus spread is transmitted through breathing and touching dirty surfaces (85.5%); a greater percentage of study participants correctly stated not to participate in gathering helps to control the disease (82.0%); 80.3% of the participants correctly knew that traveling causes the spread of the virus. Most of the participants (73.5%) correctly answered the question "Is it necessary to wear mask in community?" and true answer was "yes". Two out of three participants answered as to "be quarantined" to the question "What is the best option if you have been in contact with COVID-19 positive patient?". Only one third of participants could choose the right answer "2 meters" of the question "What is the perfect distance in community to be safe from Corona virus?". Only 20.7% of the participants correctly answered to the question "Does drinking a lot of water, sleeping a lot, is good for controlling the disease?" and true answer was "no" **(Table 2).**

The information source was declared as mainly internet (37.4%) and television (36.4%); also, radio was said by 7.0% and doctor was said by 4.5% of the participants. (not given in the table)

Most of the participants (73.5%) stated that the fear of COVID-19 caused stop continuing to work, out of them (n=795), 68.1% of them made hobby for themselves at home and 29.4% of them expressed their feelings as worry. Half of the participants stated that they had some difficulties while making their payments (49.9%). **(Table 3)**

Table 3. Mental Health Status and Perceptions of the participants during COVID-19 Pandemic (n = 1081) (Herat, Afghanistan; 10 April-8 May 2020)

Perceptions of the participants about COVID-19	n	%
Fear of COVID-19 caused stop continuing my job (n=1081)		
Yes	795	73.5
No	286	26.5
Having any hobby at home (n=795)		
Yes	541	68.1
No	254	31.9
Feelings during staying at home (n=795)		
Nostalgic	226	28.4
Depressed	71	8.9
Worry	234	29.4
Anxious	113	14.2
None of the above	151	19.0
Having any fear at the workplace (n=286)		
Yes	119	41.6
No	167	58.4
Having difficulty economically (n=1081)		
Yes	539	49.9
No	542	50.1

More than half of the participants (53.9%) were using mask and gloves while leaving home. One third of participants (33.7%) stated that they were washing their hands with soap and water between

5-10 times in a day; almost one third of participants (30.8%) said between 11-20 times in a day. Only 26.1% of the participants told that they were washing their hands more than 20 seconds in each time **(Table 4).**

Table 4. Personal hygiene behaviors of the participants during COVİD-19 Pandemic (Herat, Afghanistan; 10 April-8 May 2020)

	n	%
Using mask and gloves out of home		
Yes	583	53.9
No	498	46.1
How many times they wash their hands with water and soap in a day (n=1081)		
Less than 5 times	235	21.7
5-10 times	364	33.7
11-20 times	333	30.8
More than 20 times	149	13.8
How long they was their hands with water and soap each time (n=1081)		
Less than 5 seconds	204	18.9
5-10 seconds	279	25.8
11-20 seconds	316	29.2
More than 20 seconds	282	26.1

The statistically significant difference was found between the groups: "The fear of COVID-19 caused stop continuing their job" (7.37 ± 1.44) and "the fear of COVID-19 did not prevent continuing their job" (6.88 ± 1.50) in terms of total knowledge score (p<0.001). The difference in knowledge on COVID-19 between the groups who use mask and gloves (7.79 ± 1.16) and who do not (6.60 ± 1.53) was found statistically significant (p<0.001). Also there was significant difference between the frequencies of hand washing (p<0.001) and the duration of hand washing (p<0.001) in terms of total knowledge score. According to the results between the knowledge scores and the frequencies and also duration of hand washing; the numbers and duration of hand washing were increasing with the knowledge scores.

Table 5. The distribution of knowledge scores by perceptions and behaviors of the participants about COVID-19 (Herat, Afghanistan; 10 April-8 May 2020)

Perceptions and behaviors of the participants about COVID-19	Total Information Score			P
	X̄±SD	Median (Q1-Q3)	Min-Max	
Fear of COVID-19 caused stop continuing my job (n=1081)				
Yes	7.37 ±1.44	8.00 (7.00 - 8.00)	2 - 10	**<0.001**
No	6.88 ± 1.50	7.00 (6.00 - 8.00)	2 − 9	
Having any hobby at home (n=795)				**<0.001**
Yes	7.42 ± 1.43	8.00 (7.00 - 8.00)	2 - 10	
No	7.04 ± 1.49	7.00 (6.00 - 8.00)	2 - 10	
Feelings during staying at home (n=795)				**<0.001ª**
Nostalgic	7.66 ± 1.29	8.00 (7.00 - 9.00)	2 - 10	
Depressed	6.55 ± 1.51	7.00 (6.00 - 8.00)	3 − 10	
Worry	7.50 ± 1.34	8.00 (7.00 - 8.00)	3 − 10	
Anxious	7.17 ± 1.44	7.00 (6.00 - 8.00)	3 − 9	
None of the above	6.89 ± 1.57	7.00 (6.00 - 8.00)	2 − 10	
Having any fear at the workplace (n=286)				**<0.001**
Yes	7.63 ± 1.29	8.00 (7.00 - 9.00)	3 - 10	
No	6.74 ± 1.54	7.00 (6.00 - 8.00)	2 - 10	
Using mask and gloves out of home (n=1081)				**<0.001**

Yes	7.79 ± 1.16	8.00 (7.00 - 9.00)	3 - 10	
No	6.60 ± 1.53	7.00 (6.00 - 8.00)	2 - 10	
How many times they wash their hands with water and soap in a day (n=1081)				**<0.001ᶜ**
Less than 5 times	6.70 ± 1.53	7.00 (6.00 - 8.00)	2 - 9	
Between 5-10 times	7.27 ± 1.38	8.00 (6.00 - 8.00)	3 – 10	
Between 10-20 times	7.28 ± 1.44	8.00 (7.00 - 8.00)	2 - 10	
More than 20 times	7.95 ± 1.32	8.00 (8.00 - 9.00)	4 – 10	
How long they were their hands with water and soap each time (n=1081)				**<0.001ᵈ**
Less than 5 seconds	6.53 ± 1.51	7.00 (6.00 - 8.00)	3 - 9	
Between 5-10 seconds	7.12 ± 1.47	7.00 (6.00 - 8.00)	2 – 10	
Between 10 -20 seconds	7.32 ± 1.43	8.00 (6.00 - 8.00)	3 – 10	
More than 20 seconds	7.79 ± 1.24	8.00 (7.00 - 9.00)	2 – 10	

SD: Standard deviation, Q₁:1ˢᵗ Quartile, Q₃:3ʳᵈ Quartileᵃ The groups which were found significantly different according to Dunn multiple comparison test performed after Kruskal Wallis test ("depressed"/ "anxious", p=0.022; "depressed"/ "worry", p<0.001; "depressed"/ "nostalgic", p<0.001; "anxious"/ "nostalgic", p=0.007)

ᵇ The groups which were found significantly different according to Dunn multiple comparison test performed after Kruskal Wallis test ("very good"/ "good", p<0.001; "very good"/ "average", p<0.001; "weak"/ "average", p<0.001; "good"/ "average", p=0.011)

ᶜ The groups which were found significantly different according to Dunn multiple comparison test performed after Kruskal Wallis test ("Less than 5 times"/ "Between 5-10 times", p<0.001; "Less than 5 times"/ "Between 10-20 times", p<0.001; "Less than 5 times"/ "More than 20 times", p<0.001; "Between 5-10 times"/ "More than 20 times", p<0.001; "Between 10-20 times"/ "More than 20 times", p<0.001)

ᵈ The groups which were found significantly different according to Dunn multiple comparison test performed after Kruskal Wallis test ("Less than 5 seconds"/ "Between 5-10 seconds", p<0.001; "Less than 5 seconds"/ "More than 10 seconds", p<0.001; "Less than 5 seconds"/ "More than 20 seconds", p<0.001; "Between 5-10 seconds"/ "More than 20 seconds", p<0.001; "Between 10-20 seconds"/ "More than 20 seconds", p<0.001)

Discussion

This study was the first research to find out the level of awareness and perception of risk and protective behaviors caused by COVID-19 among adult population in Herat. In our study, 54.7% of the participant were males, 53.7% of them were literate (From primary school to university). Literacy rate among Afghanistan population is 43.0% (29.8% in women and 55.8% in men) (14-15).

It was found that majority of the participants had the knowledge on COVID-19, such as a contagious disease (99.8%), the importance of hand hygiene (97.6%), and preventive measures from the infection (90.3% and 85.5%). This pandemic started in Wuhan, and spread all over the world almost in two months. The information gathered from China showed that the severe acute respiratory syndrome coronavirus 2 had a high level of fatality ratio among especially the people with non-communicable diseases and elderly people. Despite the short duration of pandemic, the information on COVID-19 could reach to almost all the population. This could be the result of campaigns held by government in collaboration with NGOs as well as media based on the messages of research and international organizations in four months. It is a successful of information campaign all over the world (16-18).

The most of the participants recognized the traveling in pandemic is a risky behavior. The first positive cases of COVID-19 was recorded in Islam Qale border and the infected person was an Afghan refugee in Iran (11). This information might be increased the importance of not-traveling in the community during the pandemic. Some information such as social distance was not

reached widely to the community, only 32.4% of participants had information on true distance of social distance. It is already known that wearing mask and social distance should be implemented together to stop the spreading of the virus between the people (19-20). Also, the percentage of the knowledge on the reason of being quarantined was declared as 62.0% of the participants. We think the importance of personal and hand hygiene behaviors were easily accepted in the community because personal and hand hygiene bn preventive measures such as wearing mask, social distance and being quarantined were not reach to all the people.

In this study (37.4%) of participants declared their source of information about COVID-19 through internet and television (36.4%); also radio was said by 7.0% and doctor was said by 4.5% of the participants Participants access to television and internet was not high as well as people do not trust television the way they should, so campaigns using these methods cannot cover all categories of people in country.

Out of participants, 73.5% answered that they stopped working life, and 41.6% of the workers were afraid at workplace. Compared to a study in China 85% answered that they are afraid of working in COVID-19 pandemic situation, and 89% of participants had a sufficient knowledge about COVID-19 (21). In Afghanistan people need to work because of economic conditions. Another problem is that they cannot afford mask and gloves to prevent themselves from the disease in their workplace.

 The psychological impacts of COVID-19 on participants who stayed at home is as follows: 29.4% were worry 28.4% felt nostalgic; 14.2% were anxious, and 8.9% were feeling depressed. According to a study on 1210 participants from 194 cities in China, 54% of participants selected the psychological impact of the COVID-19 as moderate or severe, 17% reported moderate to severe depressive symptoms, and 29% reported moderate to severe anxiety symptom (22). Our results show that the percentage of psychological effects of staying at home are lower the study conducted

in China; the reason of this can be this question in our study only asked to people who stayed at home, and 68.1% of the people stayed at home had some hobbies at home. We thought that having hobbies at home can protect the people from psychological effects of pandemic. Economic difficulties also can affect the psychological health of the people.

In our study, 73.5% of the participants answered that wearing mask can protect from being infected with corona virus, but 53.9% of them used mask and gloves when leaving home. But comparing to China, 97% of them used mask when they wanted to leave home. Comparing to 62% of Paraguayans citizens had the correct knowledge about COVID-19 and 88.35% of participants wore mask in public. 93.6% of participants of a study in Anhui province of China answered that they use mask in public and 97.4% of participants had the knowledge that in corona virus pandemic situations they should have no gatherings and go out when it is a necessity (23-24). As it was discussed the previous paragraph, the message on the importance of wearing mask could not reach to all people; but they could not implement in this preventive measure in their life-style. We do not know why they did not wear mask out of home; but it is known that most of the people were not able to afford mask or gloves because of bad economic situation in Afghanistan (25).

Almost all the people know the importance of hand hygiene (97.6%) but 21.7% answered that they wash their hands with soap less than 5 times per day and 70.8% of respondents washed their hands for less 20 seconds. Comparing to a study in Northern Thailand that 73.4% of participants had poor knowledge about COVID-19 and 28.5% of them had poor attitudes toward disease control and prevention (13). We also analyzed the relation between the knowledge score and their hand washing behaviors, it showed that their true hand washing behaviors and their knowledge were increasing together. So, we thought that there are two possibilities which explains our finding; the first one is "they do not have sufficient facilities" and the second one "they could change their knowledge into behavior". There is a need to re-

search their handwashing knowledge and practice by using hang washing protocols.

Comparing to a study by Arina Anis Azlan et al in Malaysia between 27th march 2020 to 3rd April that 83.4% of participants were practicing proper hand hygiene (26).

The mean scores on COVID-19 knowledge was significantly higher among the people stopped working because of fear of COVID-19 than working; higher in the people having hobbies at home than not having any hobby among the people staying at home, and higher in the people with any declared psychological problems than the people without any problem. The level of knowledge can cause the people's feelings and also strengthen management of their stress (27). Therefore, the campaign should target to increase the level of knowledge in the community (6).

There are some limitations in our study. We planned our research as a cross-sectional study and calculated a sample size. But we could not select our sample randomly in the community because of insufficient records, and also difficult circumstance during pandemic. We used convenient sample selection method and interviewed to the only volunteer people. Despite this limitation we aimed to reach the similar distribution of age and gender between the interviewed participants and the population pyramid of Afghanistan. We created the questionnaire in Dari language. In Herat city there are few residents that cannot speak in Dari language, we did not include them in this study due to their inability to understand the questions. We also asked to the people having psychological problems related to COVID-19; the medical school students explained these psychological problems during the interview; we do not know if the people understand and answer this question properly. We did not include the steps of hand washing in our questionnaires. There is also strength of our study; this is the only study conducted to find out the knowledge and the behaviors of the people on COVID-19 in Afghanistan, we reached to more than 1000 people in all provinces of Herat, our interviewers were medical school students who had enough knowledge on

the diseases and trained how to interview to the people in the field.

Conclusion:
This study provided an examination of people's knowledge and their risk perception about COVID-19. Our findings show the need for campaigns to increase the knowledge on COVID-19 in Herat. Difficult socioeconomic status of Herat citizens makes them vulnerable against the disease. Low level of knowledge of citizens makes it harder to make them understand the risks of the disease. Our recommendations are the information in the campaign should be reached to all people in the community, and the governmental should apply the preventive measurements as considering the inequalities in community.

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