

## KNOWLEDGE AND PRECAUTION PRACTICES ABOUT COVID-19 AMONG PREGNANT WOMEN ATTENDING AL- YARMOUK TEACHING HOSPITAL

Noor Firas Kareem<sup>1\*</sup> and Lamia Dhia Al-Deen<sup>2</sup>

<sup>1</sup>Ministry of Health, Baghdad, Iraq.

<sup>2</sup>Collage of Medicine/Al-Mustansyria University, Baghdad, Iraq.

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\*Corresponding Author: Noor Firas Kareem

Ministry of Health, Baghdad, Iraq.

### ABSTRACT

**Background:** Coronavirus disease is now a global concern with the non-availability of definitive treatment and attacks all age groups of the population. Hence, applying preventive measures is the most important intervention to control the infection. **Aim:** The objective of current study is to assess knowledge and precaution practices towards Corona virus and its associated factors among pregnant women. **Method:** From January to March 2021, a convenient sample of pregnant women at Al-Yarmouk teaching hospital in Baghdad participated in a cross-sectional analytic research. Data were acquired by direct interview utilising a unique questionnaire that includes sociodemographic background, COVID-19 knowledge, and precaution behaviors. **Results:** The study included 400 pregnant women, 44% of whom had fair understanding, 6.5 percent good knowledge, and 93% inadequate preventive measures. The majority of information came from social media (69.5%). greater knowledge was linked to younger age, greater education, and employment. Women with negative COVID-19 results were more knowledgeable than those with positive results. Obstetrical history did not affect knowledge. **Conclusion:** Although the pregnant women had an acceptable level of knowledge about COVID-19, they had poor practice towards the disease.

**KEYWORDS:** Knowledge, Precaution, Practices, COVID-19, Pregnant, Al- Yarmouk Teaching Hospital.

### INTRODUCTION

Coronavirus disease 2019 (COVID-19) is a respiratory illness caused by SARS-COV2, a single-strand, positive-sense RNA virus first identified in Wuhan, China, in December 2019.<sup>[1]</sup> The World Health Organization (WHO) declared it a global pandemic on March 11, 2020.<sup>[2]</sup> COVID-19 symptoms include fever, dry cough, myalgia, sore throat, and shortness of breath, with an incubation period of 2-14 days.<sup>[3]</sup> The disease can range from mild to severe, potentially causing acute respiratory distress syndrome, septic shock, and death, particularly in older adults and those with comorbidities.<sup>[4]</sup> A systematic review by Yang et al. found that individuals with hypertension, cardiovascular, and respiratory diseases were most vulnerable to COVID-19 mortality.<sup>[5]</sup> Pregnant women are a concern due to potential vertical transmission and increased maternal mortality in severe cases.<sup>[6]</sup> While some newborns test negative for COVID-19 after birth, others test positive within a few days, though the exact timing of transmission is unclear.<sup>[7]</sup> Pregnant women should be considered high-risk in COVID-19 prevention and control strategies.<sup>[8]</sup> Recent

studies indicate pregnant and postpartum women are at higher risk of severe complications from COVID-19.<sup>[9]</sup> The CDC reported higher rates of ICU admission and mechanical ventilation in pregnant women with COVID-19, though mortality rates were not higher.<sup>[10]</sup> COVID-19 can have detrimental effects on the fetus, including intrauterine growth restriction, preterm delivery, and stillbirth.<sup>[11]</sup> Anxiety about infection may increase demands for abortion and operative deliveries.<sup>[12]</sup> WHO recommends specialized care for pregnant women with COVID-19 symptoms.<sup>[13]</sup> Antenatal care should continue for all pregnant women, with special attention to those with comorbidities. Low-risk women can have fewer clinic visits, supplemented by virtual visits. Clinics should minimize transmission risks by limiting companions during visits.<sup>[14]</sup> Pregnant women should maintain their tetanus toxoid vaccinations.<sup>[15]</sup> As of April 16, 2021, the Joint Committee on Vaccination and Immunization recommended offering COVID-19 vaccines to pregnant women alongside the general population.<sup>[16]</sup> Vaccination protects against severe COVID-19 complications for both women and babies.<sup>[17]</sup>

Intrapartum care should be individualized, with vaginal deliveries not contraindicated for COVID-19 patients unless necessary to improve maternal oxygenation. Emergency cesarean deliveries may be needed for septic shock, organ failure, or fetal distress.<sup>[18]</sup> Postnatal care should include education on safe mother-baby interactions. Separation of mothers with COVID-19 symptoms from their babies is generally unnecessary, as breastfeeding is not contraindicated and has benefits for thermal regulation, preventing hypoglycemia, and reducing sepsis and infant death.<sup>[19]</sup> Knowledge of COVID-19 is crucial for public health measures. Studies show socio-demographic factors influence knowledge and practices among pregnant women. Inadequate knowledge and poor practices are common in developing countries.<sup>[20]</sup> Iraq has implemented measures to control COVID-19, including public health education.<sup>[21]</sup> Objectives of study: to assess knowledge and precaution practices of pregnant women towards COVID-19, to identify the sociodemographic factors influencing women knowledge concerning COVID-19 among a sample of pregnant women attending Al-Yarmouk teaching hospital in Baghdad.

## METHOD

This is a descriptive cross-sectional study with an analytic element conducted in the maternity ward and consultant clinic at Al-Yarmouk Teaching Hospital in Baghdad from January to March 2021. **Study Group:** A convenient sample of pregnant women attending the Obstetrics and Gynecology Department during the study period who agreed to participate were included. **Study Tool:** Data were collected using an interviewer-administered questionnaire developed by the author and reviewed by a supervisor based on previous studies.<sup>[22-25]</sup> The questionnaire comprised three domains:

1. Socio-demographic data (age, employment, education, reproductive history).
2. Participants' knowledge about COVID-19 with 20 yes/no/don't know questions.
3. Seven questions on precautionary practices during the COVID-19 pandemic.

**Data Collection and Ethical Considerations:** The researcher conducted interviews at Al-Yarmouk Teaching Hospital twice a week during working hours. Women were invited to participate voluntarily, assured of confidentiality, and provided verbal consent. Each interview took approximately 15-20 minutes.

## Variables Defined

- **Age:** <20 years, 20-24, 25-29, 30-34, and 35+ years.
- **Education Level:** Illiterate, primary, secondary, college & higher.
- **Employment Status:** Employed, unemployed.
- **Gestational Age:** First trimester (<13 weeks), second trimester (13-27 weeks), third trimester (27-40 weeks).
- **Gravidity:** 1, 2, 3, 4, 5+.
- **Parity:** 0, 1, 2, 3, 4, 5+.
- **Abortion:** 0, 1, 2+.
- **COVID-19 Test Status:** Tested or not before/during pregnancy.

**Administrative Arrangements:** Approval was obtained from the Department of Family and Community Medicine, Al-Mustansiriyah University, the Iraqi Board for Medical Specialization, Baghdad/Al-Karkh Health Directorate, and Al-Yarmouk Teaching Hospital. **Pilot Study:** A pilot study with 20 pregnant women was conducted to test the questionnaire's content and duration. Adjustments were made based on feedback, and these cases were excluded from the main study. **Statistical Analysis:** Data were analyzed using SPSS-27. Results were presented as frequency, percentage, mean, standard deviation, and range. The Pearson Chi-square test ( $\chi^2$ ) was used to test the significance of associations, with a p-value  $\leq 0.05$  considered significant.

## Scoring System

- **Knowledge about COVID-19:** Scores ranged from 20 to 60. Scores  $\geq 50$  were considered good, 40-49 fair, and  $<40$  poor.
- **Precaution Practices:** Correct answers received 1 point each (total 7 points). A perfect score indicated good practices; anything less was considered poor.

## RESULTS

During the study period 400 pregnant women who interviewed, mean age of study sample was (27.2 $\pm$ 6.8). 26.5% of theme belongs to age (20-24 years). One third (30.3%) of pregnant women were at secondary level of education, (58.0%) of total were unemployed. Sociodemographic characteristics of the participants showed in Table-1.

**Table (1): Distribution of the studied group according to sociodemographic characteristics (n=400).**

Demographic		No	%
Age (years)	<20 years	49	12.3
	20---24	106	26.5
	25---29	82	20.5
	30---34	101	25.3
	=>35years	62	15.5
	Mean $\pm$ SD (Range)	27.2 $\pm$ 6.8	(14-41)
Education	Illiterate	79	19.8
	Primary	115	28.7

Employment	Secondary	121	30.3
	College & higher	85	21.3
	Unemployed	232	58.0
	Employed	168	42.0

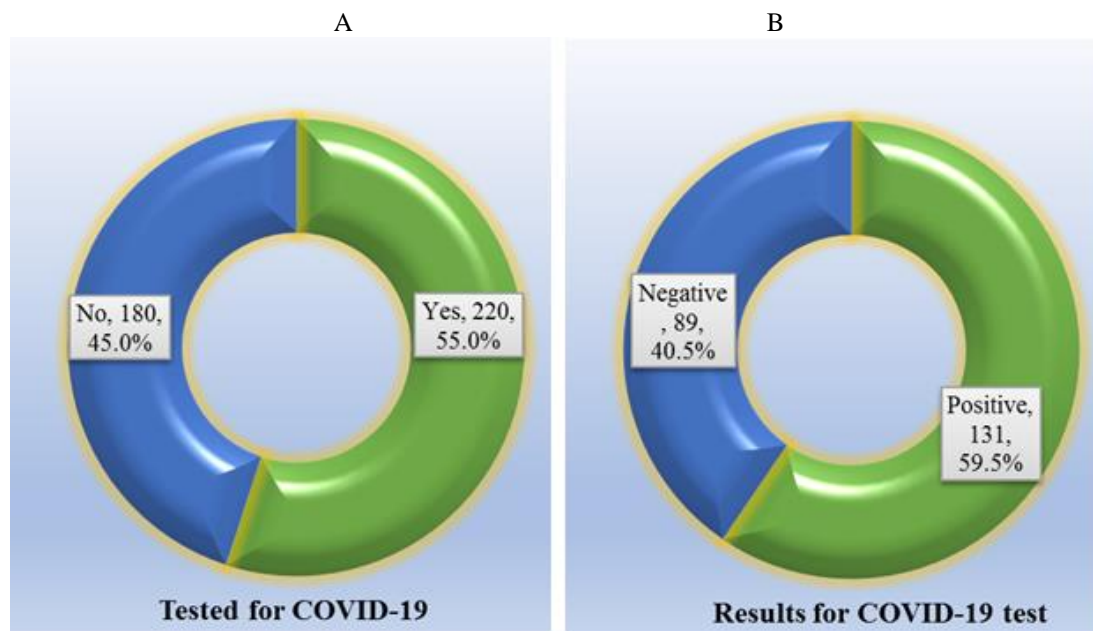
Table-2 demonstrated the distribution of studied group according to their obstetrical history. Most of them were at first trimester (37.3) with equal distribution of second and third trimester (31.5) and (31.3) respectively. Most

of them were multigravida (range 1-12), Parity range (0-8), about one third (31.5%) had one live baby. Abortion range (0-5), nearly three quarters (74.5%) of participants have no history of abortion.

**Table (2): Distribution of the studied group according to their obstetrical history.**

Reproductive		No	%
Gestational age	First (<13 weeks)	149	37.3
	Second (13-27 weeks)	126	31.5
	Third (28-40 weeks)	125	31.3
Gravida	1	59	14.8
	2	106	26.5
	3	87	21.8
	4	67	16.8
	=>5	81	20.3
	Mean±SD (Range)	3.2±1.9	(1-12)
Parity	Para 0	72	18.0
	1	126	31.5
	2	88	22.0
	3	58	14.5
	4	28	7.0
	=>5	28	7.0
	Mean±SD (Range)	1.9±1.6	(0-8)
Abortion	0	298	74.5
	1	82	20.5
	=>2	20	5.0
	Mean±SD (Range)	0.3±0.7	(0-5)

Figure 1, illustrated that more than half of studied group tested for COVID-19 (55%, n=220) and about (59.0%, n=131) of them were had positive results.



**Figure (1): A- Distribution of study group according to test state. B -Distribution of study group according to their results.**

Regarding the level of knowledge of pregnant women about COVID-19, the result showed that 49.5% had poor

knowledge, 44% fair, 6.5% good as shown in Figure-2.

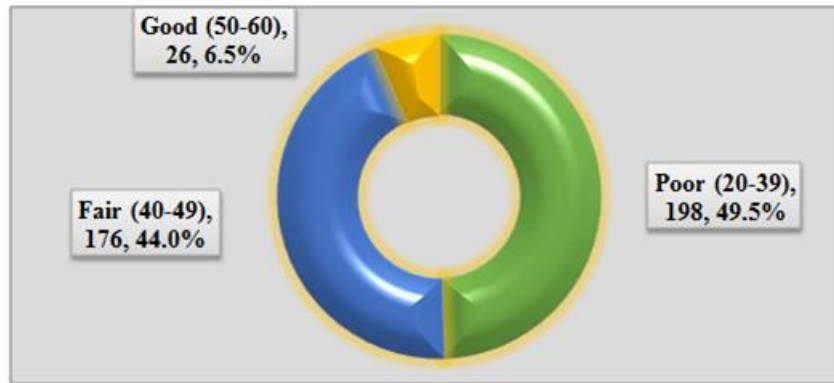


Figure (2): Distribution of studied group according to the level of knowledge about COVID-19.

Figure-3 demonstrated the precaution practices of women included in the study, 372(93%) had poor practice regarding COVID-19.

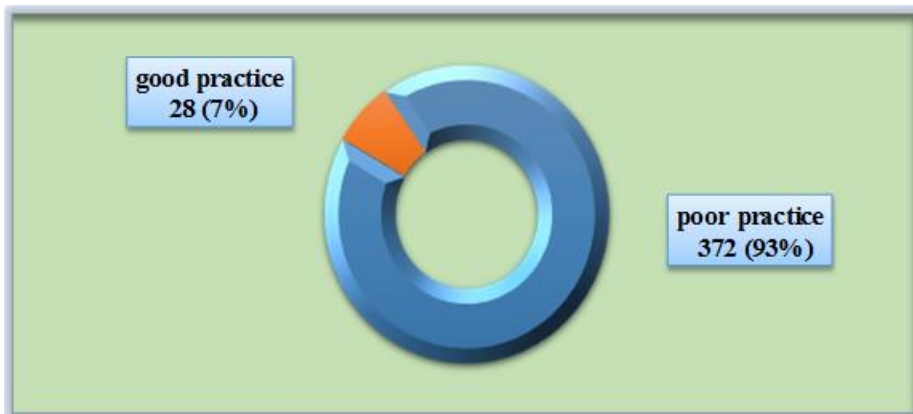


Figure (3): Distribution of studied women according to the level of precaution practices towards COVID-19.

Regarding the source of information about COVID-19, the current study reported that social media ranked first as source of information (69.5%) followed by TV

(37.8%), healthcare workers (34.5%), family and people (28.7%) and finally radio (4.5%) as shown in Figure -4.

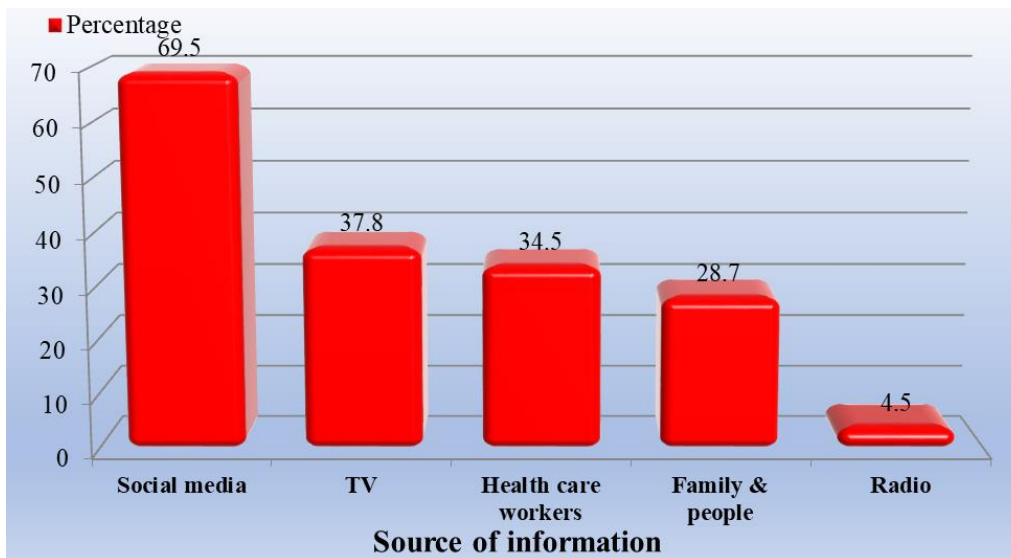


Figure (4): Distribution of studied sample according to their source of information.

Table 3 shows the distribution of pregnant women based on their level of knowledge about COVID-19 and its association with certain socio-demographic characteristics. The key findings are: **Age:** There is a statistically significant impact of age on knowledge level ( $p=0.017$ ), with the highest rate of good knowledge among women aged 25-29 years. **Education:** Education

level is significantly related to knowledge ( $p=0.0001$ ). Among illiterate women, 69% had poor knowledge, compared to 32.9% of women with higher education. **Employment Status:** Employment status significantly affects knowledge ( $p=0.0001$ ). Employed women were nearly three times more likely to have good knowledge about COVID-19 compared to unemployed women.

**Table (3): Distribution of studied sample according to the level of knowledge and its association with sociodemographic characteristics.**

		Knowledge Score about COVID-19 during pregnancy						P value
		Poor(20-39)		Fair(40-49)		Good(50-60)		
		No	%	No	%	No	%	
Age (years)	<20 years	31	63.3	17	34.7	1	2.0	0.017*
	20---24	50	47.2	53	50.0	3	2.8	
	25---29	34	41.5	38	46.3	10	12.2	
	30---34	49	48.5	41	40.6	11	10.9	
	=>35 years	34	54.8	27	43.5	1	1.6	
Education	Illiterate	55	69.6	23	29.1	1	1.3	0.0001*
	Primary	66	57.4	44	38.3	5	4.3	
	Secondary	49	40.5	64	52.9	8	6.6	
	College & higher	28	32.9	45	52.9	12	14.1	
Employment	Unemployed	131	56.5	94	40.5	7	3.0	0.0001*
	Employed	67	39.9	82	48.8	19	11.3	

\*Significant association between percentages using Pearson Chi-square test ( $\chi^2$ -test) at 0.05 level.

The level of knowledge was analyzed in relation to obstetric history of participants, the result of the study

revealed no association between obstetric history and level of knowledge about COVID-19. Table 4.

**Table (4): Distribution of pregnant women according to level of knowledge and its association with obstetric history.**

		Knowledge Score about COVID-19 during pregnancy						P value
		Poor(20-39)		Fair (40-49)		Good(50-60)		
		No	%	No	%	No	%	
Gestational age (weeks)	First (<13)	69	46.3	72	48.3	8	5.4	0.136
	Second (13-27)	59	46.8	54	42.9	13	10.3	
	Third (28-40)	70	56.0	50	40.0	5	4.0	
Gravida	1	26	44.1	30	50.8	3	5.1	0.070
	2	55	51.9	42	39.6	9	8.5	
	3	34	39.1	46	52.9	7	8.0	
	4	32	47.8	29	43.3	6	9.0	
	5	51	63.0	29	35.8	1	1.2	
Parity	0	36	50.0	32	44.4	4	5.6	0.099
	1	58	46.0	59	46.8	9	7.1	
	2	39	44.3	43	48.9	6	6.8	
	3	26	44.8	25	43.1	7	12.1	
	4	18	64.3	10	35.7	0	0	
Abortion	0	143	48.0	132	44.3	23	7.7	0.419
	1	45	54.9	34	41.5	3	3.7	
	2	10	50.0	10	50.0	0	0	

\*Significant association between percentages using Pearson Chi-square test ( $\chi^2$ -test) at 0.05 level.

Regarding COVID-19 test state of pregnant women and its association with the women's knowledge, the results revealed there is no statistically significant association between them ( $p$  value=0.64), but significant association

was detected between negative results and level of knowledge. As in table 5.

**Table (5): Distribution of pregnant women according to the level of knowledge and test results for COVID-19.**

		Knowledge Score about COVID-19 during pregnancy						P value
		Poor(20-39)		Fair (40-49)		Good(50-60)		
		No	%	No	%	No	%	
Tested for COVID-19	Yes	105	47.7	99	45.0	16	7.3	0.647
	No	93	51.7	77	42.8	10	5.6	
Results of test for COVID-19(n=220)	Positive	53	40.5	70	53.4	8	6.1	0.010*
	Negative	52	58.4	29	32.6	8	9.0	

**\*Significant association between percentages using Pearson Chi-square test ( $\chi^2$ -test) at 0.05 level.**

Table 6 shown that the level of knowledge regarding COVID-19 had statistical significant influence on practice (p=0.028).

**Table (6): Women's knowledge level in relation to their practice (n=400).**

Level of knowledge	Good practice		Poor practice		P value
	No.	%	No.	%	
Good	5	19.2	21	80.8	0.028
Fair	13	7.4	163	92.6	
Poor	10	5.1	188	94.9	

## DISCUSSION

Although the impact of COVID-19 infection during pregnancy is not fully established, pregnant women are particularly vulnerable to infectious diseases due to immunological suppression, necessitating preventive measures against COVID-19 in this subgroup.<sup>[24]</sup> Most pregnant women in this study were aged 20-24 years, the peak reproductive age, with about one-third having secondary education and 58% being unemployed. These findings align with other studies in Iraq and elsewhere.<sup>[22,23]</sup> More than one-third of participants were in their first trimester (37.7%), with an equal distribution in the second (31.5%) and third trimesters (31.3%). This contrasts with studies in Ghana where most pregnant women were in their third trimester.<sup>[25]</sup> The COVID-19 pandemic and partial lockdowns, leading to the closure of private clinics, might explain this discrepancy. Most participants were multigravida with more than one live baby, and nearly two-thirds had no history of abortion. Nearly half (49.5%) of the women had poor knowledge about COVID-19, a lower figure compared to a previous Iraqi study by Abdulla et al. (2021), which reported poor knowledge in approximately two-thirds of participants.<sup>[23]</sup> This improvement could be due to better coronavirus risk communication over time. In contrast, studies from India reported only 24.7% and 24.6% of participants with poor knowledge, respectively.<sup>[26]</sup> All participants had heard about COVID-19, aligning with an Iraqi study.<sup>[23]</sup> Over half (53%) recognized COVID-19 as a viral disease, with fever and cough as the most common symptoms, though fewer identified myalgia/weakness, likely considered physiological in pregnancy. These findings are consistent with study.<sup>[27]</sup> About 37% knew there was no clinically approved treatment for COVID-19 at the study time, a lower figure compared to studies in Saudi Arabia and Egypt, which reported 76% and 62.4%, respectively.<sup>[28,29]</sup> Half of the participants mistakenly believed that pregnant women are at higher risk of contracting COVID-19. Studies from

Iran, the USA, and China suggest pregnant women might not be more susceptible to infection.<sup>[29-31]</sup> Nearly 39.5% believed pregnant women with COVID-19 would have more complications, and about half thought infected mothers were at higher risk of miscarriage or preterm labor, similar to a Singapore study.<sup>[32]</sup> Mascio et al. (2020) found an 18.4% increase in preterm births before 37 weeks in COVID-19 positive pregnant women.<sup>[33]</sup> Around one-third preferred cesarean delivery if diagnosed with COVID-19, with 44% uncertain, reflecting a Turkish study where 45% had doubts about delivery mode.<sup>[34]</sup> About 38.3% incorrectly believed breastfeeding was unsafe for COVID-19 positive mothers, with 36% unsure, paralleling Turkish findings.<sup>[34]</sup> Salvatori et al. (2020) in Italy emphasized the benefits of breastfeeding even for infected mothers.<sup>[35]</sup> Two-thirds of participants believed in the effectiveness of isolation and treatment to reduce COVID-19 spread, close to the 80% reported in Egypt and the 97% in China.<sup>[24,36]</sup> Knowledge levels were significantly associated with younger age, higher education, and employment, consistent with studies in Ghana, Ethiopia, and Nigeria.<sup>[22, 25, 37, 38]</sup> Social media was the primary information source for 70% of respondents, similar to findings in Iraq, Saudi Arabia.<sup>[23, 28]</sup>

## CONCLUSION

The study concluded that while more than half of pregnant women had an acceptable level of knowledge about COVID-19, most exhibited poor precaution practices, with good knowledge associated with appropriate practices. Significant associations were found between knowledge and age, education, and employment, but not with obstetrical history. Women primarily relied on social media for COVID-19 information.

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