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RESEARCH ARTICLE

COVID19 AND BREASTFEEDING: WHAT WOMEN SAID; WHAT HEALTH WORKERS PRACTICES IN MOROCCO?

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Abstract

Objective: The benefits of early initiation of breastfeeding and exclusive breastfeeding for a period of six months for the newborn are well documented. Despite this scientific evidence, only 35% of Moroccan children are exclusively breastfed at 6 months. The COVID-19 pandemic has seriously impacted the health of women and newborns. The aim of our study is to contribute to the improvement of breastfeeding practices in the context of health crises.

Method: We conducted a descriptive cross-sectional study in the prefecture of Meknes between December 2020 and March 2021. Two tools for data collection were used: a questionnaire dedicated to mothers of children aged 0-12 months (breastfeeding and non-breastfeeding) and an online questionnaire distributed to health professionals. Three hundred and eighty-five mothers and 52 health professionals participated in this study.

Results: During the COVID-19 pandemic, 250 (64.9%) of the 385 mothers surveyed reported holding their babies for the first time within one hour of birth. Twenty-seven mothers (7%) had COVID-19 either during pregnancy (57.2%), delivery (7.1%) or while breastfeeding (28.6%). Twelve mothers (42.9%) of those with COVID-19 breastfed their babies and took preventive measures during breastfeeding by wearing masks and washing their hands regularly. Five babies (1.3%) had COVID-19. Although the majority of health professionals surveyed agreed that they should promote breastfeeding, only half of them reported discussing about breastfeeding in a COVID-19 context with mothers.

Conclusion: Recognizing the benefits of breastfeeding, if the health of the mother and her newborn allows, direct breastfeeding or pumping of breast milk should be encouraged by health care providers and must form the basis of interventions to improve breastfeeding during a health crisis.

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Introduction:-

Early initiation of breastfeeding and exclusive breastfeeding for up to six months has many benefits for both the newborn and the mother [1]. WHO and UNICEF recommend exclusive breastfeeding from birth to six months of age and continuing thereafter until two years of age, in addition to optimal diversified feeding [2]. The evidence supporting exclusive breastfeeding from birth as a foundation for early childhood development is indisputable. It has been documented that infants exclusively breastfed for six months are better protected against infections such as gastrointestinal than infants who are provided with other foods in addition to breastmilk from the age of 3–4 months [3].

Victora and colleagues confirmed that children fed exclusively on breast milk for the first 6 months of life have the best chance of achieving full development throughout childhood and adolescence especially with the introduction of nurturing care during breastfeeding practice [1]. According to an international meta-analysis, aggregating data collected in 164 countries, it has been shown that the generalization of breastfeeding could prevent the death of 823,000 children under 5 years of age each year in the world and prevent several childhood diseases [5]. The WHO and UNICEF recommend a duration of six months of AME in order to guarantee optimal growth, development and health of the infant [1].

In Morocco, despite all this scientific evidence, according to the latest National Survey on Population and Family Health [4], only 35% of children are exclusively breastfed [4]. Early breastfeeding within the first hour after delivery is practiced at the national level by only 42.6% of women. About 13.8% of newborns were breastfed one to two hours after birth. About 14% were breastfed 3 to 6 hours after birth and 23.1% beyond 6 hours.

During the COVID-19 pandemic, WHO and UNICEF were concerned about its impact on the health of women and newborns. In Morocco, the Ministry of Health and Social Protection (MSPS), with support from UNICEF, formulated relevant guidelines to preserve and promote healthy nutrition as a determinant of newborn health by emphasizing the importance of AM during the COVID-19 pandemic and by training health professionals to provide clear, simple and effective messages to encourage mothers to adopt good AM practices [6].

Only few studies have been published specifically on COVID-19 and breastfeeding. Our study aims to explore the knowledge, attitudes and practices of mothers and health professionals towards breastfeeding in the context of COVID 19.

Method:-

Study Design:

We conducted a quantitative cross-sectional study between December 2020 and March 2021. . This study was conducted in the prefecture of Meknes which was among the first Moroccan cities to be affected by the COVID-19 pandemic and on the other hand, it was the subject of a previous study in 2017 on the factors of breastfeeding practice [7].

Population:

The target population of the study was mothers of children aged 0 to 12 months who came to the health centers for outpatient consultations or vaccination sessions, as well as health personnel caring for pregnant women and children in the same health centers. The choice of health centers was based on geographical criteria to better represent the different social strata in the prefecture. These criteria are represented by the habitat (urban, peri-urban or rural). In addition, from an epidemiological point of view, we selected the health centers that had a high prevalence of COVID-19 infection.

Sampling

To estimate the minimum number of mothers to participate in the study, we used the formula for a cross-sectional study:

$$n = \frac{Z_{\alpha}^2 p(1 - p)}{d^2}$$

Where,

n: minimum sample size.

p: assumed prevalence of breastfeeding during the Covid-19 period. As p is unknown in the Moroccan population, we assumed its value is equal to 50%.

$Z_{\alpha/2} = 1.96$ equivalent to a 95% confidence level.

d = 5%, precision. The sample size is therefore $n = 385$.

Tools and data collection

We used two pre-tested and validated data collection tools. A questionnaire dedicated to mothers of children aged 0-12 months (breastfeeding and non-breastfeeding) that was administered by trained interviewers. An online questionnaire (Google Forms) distributed by the provincial team to the staff of all primary health care facilities in Meknes.

Ethical approval

The study protocol was approved by the Ethics Committee of the Faculty of Medicine of Rabat (Approval number A/21 at March 11, 2021). Consent was obtained prior to the administration of the questionnaire to the participants after they had been informed about the objectives of the study. The database was analyzed with respect to anonymity and confidentiality.

Results And Discussion:-

Our study on breastfeeding in the context of the Covid-19 pandemic recruited 385 women who had given birth one year before the study and 52 health professionals to identify their knowledge and attitudes towards breastfeeding and its practices in the Covid-19 context.

Parental socio-demographic characteristics

The average age of the 385 women participated in this study was 29.9 ± 6.1 years. All the women surveyed were married except one who was widowed. The vast majority of mothers (85.7%) were housewives. Regarding the education level, 33% have a secondary education level compared to 16.1% who has never gone to school. About half of the mothers interviewed declared having a household income less than 3000 MAD and 55.6% of them are living in urban areas. About one-fifth (22.1%) of these women do not have medical coverage. Among the women having a medical coverage, 30.1% and 28.6% are affiliated with the AMO or the RAMED, respectively. The majority of families (86%) have less than 3 children. Around 95.5% of women were able to breastfeed their babies (Table 1).

Table 1:- Parental socio-demographic characteristics.

Variables	N(%)
Profession	
Housewife	330(85.7)
Employee in public sector	20(5.2)
Employee in private sector	20(5.1)
Student	4(1)
Worker	11(3)
Total	385(100)
Education level	
None	62(16.1)
Primary	96(24.9)
Secondary	127(33)
Higher	100(26)
Total	385 (100)
Household income (MAD)	
<3000	183 (47.5)
3000-5999	130 (33.8)
6000-9999	42(10.9)
10000-15999	23(6.0)
≥ 15000	7(1.8)

Total	385 (100)
Habitation	
Rural	214(55.6)
Urban	
Total	171(44.4)
	385(100)
Medical coverage	
AMO	116(30.1)
RAMED	110(28.6)
FAR	57(14.8)
Private	17(4.4)
None	85(22.1)
Total	385(100)
Parity	
1	116(30.1)
2	127(33.0)
3	87(22.6)
4	37(9.6)
>4	18 (4.7)
Total	385 (100)
Anterior breastfeeding (parity > 1)	
Yes	257 (95.5)
No	12 (4.5)
Total	269 (100)

Characteristics of pregnancies and deliveries

We found that 92.5% of the women did not suffer from any chronic disease. Almost all the women had prenatal consultations (99.2%), of which 19.6% had 4 consultations and 43.5% had more than 4 consultations. 39% of the women had their consultations in the health care centers. Most of these consultations were provided by obstetrician-gynecologists (26.5%) and nurses (24.9%). The women surveyed received information about the course of the pregnancy in 17.9%, about breastfeeding (9.9%), about feeding the baby (8.1%), about the COVID 19 pandemic and about barrier measures against COVID 19 (7%). The pregnancy of the study participants was predominantly mono-fetal (96.9%). A quarter of the women (26.8%) gave birth by vaginal delivery; while 40% by vaginal delivery with episiotomy and 33.2% by cesarean section. Most women gave birth in a maternity hospital (48.6%) or in a private clinic (46%) (Table 2).

Table 2:- Characteristics of pregnancies and deliveries.

Variables	N	%
Presence of chronic diseases		
Non	356	92.5
Diabetes	9	2.3
Asthma	6	1.6
Anemia	3	0.8
Other	11	2.8
Total	385	100%
ANC		
Yes	382	99.2
No	3	0.8
Total	385	100%
ANC follow-up structure		
Gynecology clinic	99	25.7
General medicine clinic	11	2.9
Health care center	150	38.9
Health care center and General medicine clinic	47	12.2

Health care center and Gynecology clinic	57	14.8
Health care center and Maternity	11	2.9
ANC follow-up staff		
General physician	11	2.9
Midwife	9	2.3
Nurse	96	24.9
Gynecologist-Obstetrician	102	26.5
Gynecologist and Nurse	48	12.4
Gynecologist and General physician	8	2.1
Nurse and General physician	87	22.6
Gynecologist, General physician and Nurse	15	3.9
General physician and midwife	5	1.3
Number of ANC's		
1-3	75	19.6
4	75	19.6
>4	166	43.5
Missing	66	17.3
Total	382	100%
Information received during pregnancy		
Related to nutrition	31	8.1
Related to the pregnancy	69	17.9
Related to breastfeeding	38	9.9
Related to the Covid-19 pandemic	27	7.0
Related to barrier measures against Covid-19	20	5.2
Total	385	100%
Mode of delivery		
Cesarean	128	33.2
Vaginal	103	26.8
Vaginal with episiotomy	154	40.0
Total	385	100%
Place of delivery		
Maternity	187	48.6
Private clinic	177	46.0
Birthing home	13	3.4
At home	8	2.1
Total	385	100%
Type of pregnancy		
Mono-fetal	375	96.9
Gemellar	10	2.6
Total	385	100%

Knowledge and attitudes of the women surveyed about breastfeeding in the context of Covid-19

Breast milk alone is considered by 79.5% of the women to be sufficient for the health of the newborn up to 6 months. The quasi-totality of women (97.7%) recognized that the colostrum is good for the baby. In addition, 87.3% said that breastfeeding is benefit for the child's and mother's health. The women in our study had more knowledge on the duration of exclusive breastfeeding than mothers in East Africa. Indeed, a systematic review on knowledge, attitudes and practice of exclusive breastfeeding reported that only 49.2% of East African women knew that the duration of exclusive breastfeeding is six months [8].

The women surveyed mentioned that they are encouraged to breastfeed exclusively either by their spouses (74.3%), family members (59.7%) or health care staff (23.9%) (Table 3).

Table 3:- Knowledge and attitudes of the women surveyed about breastfeeding.

The breast milk alone is sufficient for a child's health?		
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From 3 to 5 months	67	17.4
Up to 6 months	306	79.5
Over 6 months	11	2.9
Missing	1	0.3
Total	385	100%
The Mother's opinion on the first milk (colostrum)		
Good for the baby	376	97.7
I don't know	9	2.3
Total	385	100%
Benefits of breastfeeding		
For the child's health	49	12.7
For the child's and the mother's health	336	87.3
Total	385	100%
People who encourage exclusive breastfeeding		
Partner	286	74.3
Health care staff	92	23.9
Family and friends	230	59.7
Until what age breastfeeding is encouraged		
Up to 5 months	19	4.9
Up to 6 months	134	34.8
From 7 to 12 months	31	8.1
Over 12 months	149	38.7
Missing	52	13.5
Total	385	100%

Similarly, support from partners to initiate and use breastfeeding has been reported from other socio-cultural settings [9; 10; 11; 12].

During the Covid-19 pandemic, 99.2% of women continued to attending the health care centers for postpartum follow-up and vaccination. Regarding the women's knowledge on the Covid-19 pandemic and the measures to be taken to protect themselves from contamination by the virus, 97.9% answered that the mask is a good means to protect themselves and that it should be changed after 4 hours of use by 73.2%. Surgical/disposable masks were used by 55.3%.

These findings were in concordance with the major guidelines on the management of pregnancy during the COVID-19 such as guidelines from the WHO [13], the Royal College of Obstetricians and Gynaecologists (RCOG) [14], the International Federation of Gynaecology and Obstetrics (FIGO) [15], the International Society of Ultrasound of Obstetrics and Gynecology (ISUOG) [16] and the American College of Obstetrics and Gynecology (ACOG) [17]. During the Covid-19 pandemic, 214 women (55.6%) reported having received breastfeeding education during pregnancy (26.2%), during delivery (45.4%) or after delivery (28.1%). About a half of women (55.6%) were in favor of breastfeeding when a mother is Covid-19. Conversely, 1 out of 3 women were against breastfeeding in the case of Covid-19. The main reason stated by these 33% of women is the risk of contamination in 88.2% (**Table 4**).

Table 4:- Knowledge and attitudes of the women surveyed about breastfeeding in the context of Covid-19.

Breastfeeding awareness received in the Covid-19 context		
Yes	214	55.6
No	171	44.4
Total	385	100%
The form of breastfeeding awareness received in the Covid-19 context		

Mothers' classes		
Individual interview	38	17.8
Digital media (vignette, spot, videos, social networks or other)	91	42.5
Total	85	39.7
	214	100%
Sources providing breastfeeding education received in the Covid-19 context		
Family and friends	43	20.1
Health professional	82	38.3
Media	16	7.5
Social networks	25	11.7
Social networks and media	48	22.4
Can a mother with Covid-19 breastfeed her baby?		
Yes	214	55.6
No	127	33.0
I don't know	44	11.4
Total	385	100%
Why a mother with Covid-19 cannot breastfeed?		
Contamination of the baby	112	88.2
I don't know	2	1.6
Missing	13	10.2
Total	127	100%

The 3 main reasons why women did not breastfeed in the context of COVID19 are the fear of transmitting the virus, the lack of information and the poor health of the mother. Yet, vertical transmission has been widely discussed in a systematic review [18]. Other causes were also cited less frequently, such as lack of masks or safety devices. Husbands play a role in the continuation of exclusive breastfeeding during the first 6 months of life according to 71.2% of respondents against 28.8% who think the opposite.

Regarding breastfeeding practice, almost 9 out of 10 mothers' breastfed (91.4%) during the pandemic. They chose exclusive breastfeeding (57.4%), artificial milk in bottles was used by 7% of women (Table 4). This result was in accordance with recommendations from a literature review on breastfeeding during the Covid-19 pandemic [19]. Also the WHO and other guidelines recommended breastfeeding in the context of Covid-19 [14; 17; 20; 21,22]. More than one third of women breastfed exclusively until the age of 6 months (36.6%). Women stopping exclusive breastfeeding before 6 months of age mentioned that this decision was made because they found that the milk was insufficient. Breast milk was accompanied by water in 33.5%, herbal tea in 22.1%. Other foods were also introduced at different ages of the babies. In fact, 37.3% of women introduced food at the age of one month and 24.1% at the age of 6 months (Table 4).

In our study, which took place during the Covid-19 pandemic, weaning was observed in 34 mothers, i.e. 8.8%, and in 76.5% of them the baby was less than 6 months old. Among the mothers who had not yet weaned, 232 (67.4%) reported that they intended to wean after the age of 18 months, 67 (19.5%) between 13 and 18 months and 37 mothers (10.8%) between 7 and 12 months. Of the 34 mothers who decided to stop breastfeeding their babies, a large percentage (79%) said they did not have enough milk, while 8.8% as a result of the mother's health problems. In no case, this decision was related to the Covid-19 pandemic.

Among the 385 women participating in the study, 27 (7%) were affected by Covid-19 either during pregnancy (57.2%), during delivery (7.1%) or during breastfeeding (28.6%). Of note, 5 women (1.3%) had babies with Covid-19. We found that 32.1% of women with Covid-19 were in isolation, 17.9% were treated medically and 21.4% were both isolated and treated medically. Twelve women (42.9%) of those with Covid-19 responded that they breastfed their babies. All of these 12 mothers took preventive measures during breastfeeding by wearing masks and washing their hands regularly (66.7%).

Knowledge and attitudes of professionals towards breastfeeding in a COVID 19 context:

We had 52 health professionals participating in our study including 25 physicians and 27 nurses. These respondents work in 32 health facilities. We noted a predominance of women with 43 respondents (82.7%) and 38 participants (73.1%) in the study were from urban areas.

About 62% of health care professional received training concerning breastfeeding. Effectively, training of health professionals on breastfeeding has a positive impact on their knowledge, skills, and hospital practices [23]. Approximately 42.3% of the respondents stated that they updated their knowledge about exclusive breastfeeding through the documentation of the Ministry of Health and Social Protection (MSPS) (94.7%), followed by the publications of international organizations. Only 50% of the respondents stated that they were familiar with the WHO and UNICEF recommendations. Indeed, they are fully aware of the key messages, namely early initiation of breastfeeding, exclusive breastfeeding up to 6 months, and introduction of foods from 6 months. Regarding early initiation of breastfeeding, 98.1% of participants responded within one hour of delivery, and 84.6% of these participants advocated breastfeeding until 6 months.

Our study showed that 67.3% of respondents reported being aware of the recommendations for breastfeeding and Covid-19 according to the breastfeeding guidelines [14; 17; 20; 21]. The three most cited sources were MSPS literature, the media, and social networks. We found that 73.1% of health care providers said that women in areas with high prevalence of Covid-19 should breastfeed versus 9.6% who said the opposite. Of note, 17% said they did not know. Midwives will continue to support breastfeeding and initiation of breastfeeding after birth as always and everywhere [2;5].

Breastfeeding should not be interrupted in the presence of a contact history of the breastfeeding mother with a person diagnosed with COVID-19 infection. She should continue breastfeeding by taking the necessary precautions, which are: 1) mother wearing a mask while breastfeeding or milking; 2) effective washing of the hands for 20 seconds before breastfeeding; 3) frequent ventilation of the environment; 4) washing clothes at 60–90°C with normal detergent; and 5) drinking plenty of fluids, balanced diet and regular sleep 4-8. COVID-19 (+) breastfeeding mother should be treated at home. WHO advise that breastfeeding should be continued, paying attention to hygiene rules instead of separating the mother and baby [5;13].

Approximately 71.2% of the study participants stated that they advise immediate skin-to-skin contact between mother and newborn and prompt breastfeeding even if the mother has confirmed COVID 19 or is a suspect contact. Those who did not advise this contact cited the risk of contamination as the main reason. They stated that they suggest switching to breastfeeding with the help of a breast pump and respecting the barrier measures. Regarding the transmission of the virus through breast milk, 78.8% did not agree with the transmission, against 7.7% who confirmed the transmission and 13.5% who declared not know. In 82.7% of the responses stated that the mother with confirmed or suspected COVID 19 should continue to breastfeed versus 5.8% who stated the opposite. We noted that 11.5% did not know.

Regarding the practice of promoting the breastfeeding in a COVID19 context, all respondents agreed that health professionals should promote breastfeeding in a safe manner in a COVID19 context. The roles listed were information, education, awareness, encouragement, counseling, and psychological support for patients affected by Covid-19.

Policy Implications

Breastfeeding is not a simple technical task. Breastfeeding promotion programs must integrate into their strategies many factors related to the mother, her baby and her health status, her birthing experience, her environment, and the entire health system. Promoting, protecting, and supporting breastfeeding is the most appropriate strategy to ensure the survival and healthy development of children in order to achieve the goals of reducing infant mortality by 2030.

The global COVID 19 pandemic has had a significant impact on economies, societies and health systems. It has also created considerable turmoil and rumor among affected populations and has undermined the credibility of medical knowledge and the legitimacy of health institutions. The Ministry of Health and Social Protection in Morocco must improve and put more interventions to improve the nutritional status of children. The promotion of breastfeeding is a priority of the national nutrition strategy.

At the facility level, the delivery of essential services during the pandemic, including newborn care, was compromised. In response, the Ministry of Health and Social Protection in Morocco, with support from UNICEF, formulated relevant and evident guidelines to preserve and promote healthy nutrition as a determinant of optimal health, integrating nutrition interventions into the COVID-19 plan, and supporting health professionals to deliver clear, simple, and effective messages using communication technologies to encourage the population to adopt good feeding practices and ensure continuity of ongoing nutrition services.

Strengths and limitations of the study

This study is the only one in Morocco to address breastfeeding in the context of covid19. It explored the knowledge, attitudes, and practices of both mothers and health professionals about breastfeeding in the context of a health crisis. Although the results and conclusions of our study are not generalizable, they are still very useful for decision makers to improve ongoing interventions in a health crisis context.

Conclusion:-

As a result of our study and based on the limited evidence currently available and recognizing the benefits of breastfeeding, it can be concluded that if the health of the mother and her infant permits, direct breastfeeding or breast milk extraction should be encouraged by health care providers after careful discussion of transmission risks. Preventive measures should be taken by COVID-19 mothers to avoid droplet transmission of infection to infants during breastfeeding.

Our national strategy and action plans, staff training and information, antenatal information, breastfeeding practice, transmission prevention and epidemic control, and community-based support are basic interventions to improve maternal breastfeeding in a health crisis.

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Contribution of Authors:

BA, SC, KM, IAA, and CH made substantial contributions to the conception and the design of the study. BA, IAA, CH, SC, KM coordinated the data collection. MA analyzed the data. BA, CH, IAA, MA interpreted the results. IAA, BA, CH and MA wrote the first draft of the manuscript. All authors participated in the revision of the manuscript, and have read and approved the final version for submission.

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