Original Article

Survey of Breastfeeding and Colostrum knowledge and Practices Among Moroccan Women: a hospital-based study

Hicham Khabbache [1], Driss Ait Ali [2], Hannane El Ghouate[3,1], Nicola Bragazzi[4], Kawtar Khabbach[5, 4], Joël Candau[6], Amelia Rizzo[7, 6], Francesco Chirico[8]

ABSTRACT

Objective

In this study, our aim was to explore the knowledge and practice of breastfeeding and colostrum among Moroccan women.

Material and methods

this is a cross-sectional study. Data was collected from a sample of 100 Moroccan women through a 16-question questionnaire.

Results and discussion

The results revealed that a significant portion (74%) of the sample, had already made the decision to breastfeed before their pregnancies. Additionally, an overwhelming majority, 98% of the participants, fed their newborns with colostrum, reflecting a widespread acceptance and understanding of its importance with only a small minority opting for alternative feeding methods.

Conclusion

To promote better breastfeeding practices, it is crucial to address the knowledge gaps through targeted educational interventions that emphasize the importance of colostrum and provide accurate information particularly among women and expectant mothers.

Keywords:

breastfeeding; colostrum; practices; knowledge.

INTRODUCTION

Produced by the mammary glands, colostrum is the first form of milk produced in late pregnancy or, in some cases, just prior to the delivery. It differs from milk in several ways, including a lower concentration of carbohydrates, lipids and potassium, and it is an important source of natural bioactive peptides and compounds, making it the

1. Hicham Khabbache, (D.A.A) & Director of lifelong learning Observatory (UNESCO/ USMBA), Department of Psychology, Faculty of Arts and Human Sciences Saïss, Sidi Mohamed Ben Abdellah University, Fez, Morocco. E-mail: hicham.khabbache@usmba.ac.ma.
2. Driss Ait Ali, Laboratory of «Morocco: history, Theology and languages», Department of Psychology, Faculty of Arts and Human Sciences Fès-Saïss, Sidi Mohamed Ben Abdellah University, Fez-Morocco. E-mail: Driss.aitali@usmba.ac.ma. (D.A.A)
3. Hannane El Ghouate, Laboratory of «Morocco: history, Theology and languages», Department of Psychology, Faculty of Arts and Human Sciences Fès-Saïss, Sidi Mohamed Ben Abdellah University, Fez-Morocco.
4. Nicola Bragazzi, Laboratory for Industrial and Applied Mathematics (LIAM), Department of Mathematics and Statistics, York University, Toronto, ON, Canada. E-mail: nicolaluigi.bragazzi@unipr.it
5. Kawtar Khabbach, Pediatric Service, CHU of Tanger-Tétouan-Al Hoceima. E-mail: kawtarkhabbach@gmail.com.
6. Joël Candau, Laboratory of Anthropology and Cognitive and Social Psychology, Côte d'Azur University, MSHS-Campus Saint-Jean-d'Angély. E-mail : JoelCandau@gmail.com
7. Amelia Rizzo, Department of Cognitive Sciences, Psychological, Educational, and Cultural Studies, University of Messina, Italy. Department od Cognitive Sciences, Psychological, Educational and Cultural Studies. E-mail: amrizzo@unime.it
8. Francesco Chirico, Post-Graduate School of Occupational Health, Catholic University of the Sacred Heart, Rome, Italy. E-mail: medlavchirico@gmail.com.

Correspondence

Hicham Khabbache, (D.A.A) & Director of lifelong learning Observatory (UNESCO/ USMBA), Department of Psychology, Faculty of Arts and Human Sciences Saïss, Sidi Mohamed Ben Abdellah University, Fez, Morocco. E-mail: hicham.khabbache@usmba.ac.ma.

Bangladesh Journal of Medical Science Vol. 23 No. 04 October'24

DOI: https://doi.org/10.3329/bjms.v23i4.76531

most suitable food for the newborns[1–4]. In addition to its benefits for newborns, colostrum benefits the mother's health in a number of ways, including increasing the postpartum infertility period, assisting her in gaining her pregestational weight, and lowering her chance of developing breast and ovarian cancer.[2,5].As such, multiple organizations, such as the United Nations International Children's Emergency Fund (UNICEF) and the World Health Organization (WHO) recommend colostrum to be administrated to newborns within the first hour after their birth, as it is believed to constitute a perfect food for them.

Upon reviewing the literature on breastfeeding and colostrum administration to children, a notable disparity is evident between countries, particularly with adverse outcomes more prevalent in developing nations.In developing countries, where where infectious diseases are common, timely colostrum administration to babies is assisting in lowering the frequency of diarrheal illnesses[6]. A study carried out in India emphasizes the significance of starting breastfeeding promptly, as it is crucial in lowering mortality rates among infants and children under five. Early breastfeeding right after birth could prevent 16-22% of neonatal deaths, making it a crucial intervention for enhancing the health of newborns[7].

Despite the well-documented benefits of early breastfeeding in reducing neonatal mortality and morbidity, global statistics indicate that only about half of newborns are breastfed within the first hour after birth[8,9]. Each year, over 4000 infants and young children die globally because they do not receive colostrum within the first hour after birth.

However, in developing countries, the rates of colostrum avoidance are still an annoying issue[10,11]. Certain mothers refrain from feeding colostrum to their newborns because of traditional or cultural beliefs. Some perceive it as lacking nutritional value for the infant, while others fear it may harm the baby's health. Some women may opt not to provide a reason for avoiding colostrum, attributing it simply to tradition.[12]. In some other instances, newborns are frequently given liquids other than their mother's milk in the first few days after birth, which can negatively impact their health outcome [2].

Cultural and anthropological factors play a significant role in shaping breastfeeding practices. A systematic review of 25 studies across seven South Asian countries found that the timing of breastfeeding initiation is primarily influenced by socioeconomic status, health considerations, and individual beliefs. Interestingly, the review highlights a gap in research focusing on intrapartum and neonatal factors related to breastfeeding initiation in the region[13]. These variations can be identified in the perceptions of women towards colostrum feeding, both between countries and within communities of the same country. Delaying the administration of colostrum is one such practice in rural Northern Ghana. Colostrum is tasted for bitterness by introducing ants to it prior to breastfeeding commencement. Before giving it to the infant, a thorough purification procedure is carried out if it is deemed to be very bitter[14]. It was shown that 13.5% of moms in northeastern Ethiopia avoided colostrum [15]. Colostrum was frequently thrown out when nursing in a different rural Ethiopian area[16]. According to Adugna, 89% of moms in Southern Ethiopia gave their children colostrum[17]. In Tanzania, Colostrum feeding and early breastfeeding initiation were reported ,by Dhingra and colleagues, to be widespread practices [18].

In the Arab-Muslim world, it might be expected that the practice of colostrum consumption is widespread, as it is encouraged by the religion. In Egypt, Mohammed and colleagues found that 74.2% of mothers fed their babies with colostrum.[19]. In Turkey, 92.4% of women breastfed their children, while not breastfeeding was linked to giving birth at home and having insufficient breastfeeding expertise[20]. In Pakistan, Khan and colleagues noticed that colostrum administration was quite common[21]. Yet in another study conducted in Pakistan, Gul and colleagues discovered that 43% of mothers threw away their colostrum.[22], a rate similar to the findings of Ben Slama and colleagues in Tunisia[23]. In Saudi Arabia, a nationwide cross-sectional survey among 4,872 women attested that 92% of the interviewees fed their babies with colostrum[24].

In Morocco, a developing country with an ongoing health system reform[25], despite this body of research, little is known about breastfeeding beliefs and practices, and, as far as we know, this study represents the first survey conducted in this country.

The main thesis of this study is that that colostrum breastfeeding is influenced by educational, cultural, and societal factors. Gaining insight into women's perceptions, knowledge, and practices related to colostrum breastfeeding can provide policymakers and caregivers with valuable information to address this

public health concern and develop appropriate policies. thereby enhancing health outcomes for both mothers and infants.

Taking the abovementioned evidence into accompt, the purpose of this study is to add to the growing body of knowledge about the colostrum breastfeeding by shedding light on the determinants of breastfeeding and colostrum associated practices among a postpartum Moroccan woman in a public hospital.

MATERIAL AND METHODS

Study design, participants and sampling procedure

This is a cross-sectional quantitative study conducted to determine women practices and knowledge about breast-feeding and colostrum and factors associated with. This study took place in in a Moroccan hospital. The study was conducted over a period from February to June 2022 and involved a sample size of 100 participants. Convenient sampling was employed to select the participants, with their inclusion being entirely voluntary based on their willingness to take part in the research

Data collection

On the basis of an extensive review of the literature and after a meeting of experts , an *ad hoc* questionnaire was developed comprising 16 main questions which investigate:

- The socio-demographic characteristics of the sample (age, place of birth, working status, educational level);
- knowledge and practices regarding colostrum and breastfeeding.

Data analysis

Initially, descriptive statistics were used to analyze the collected data to provide a characterization of the data. Answers were entered into an Excel database and analyzed using the commercial software SPSS v23.0 (IBM, USA). Set to $p < 0.05$, the statistical significance was maintained.

Ethical clearance

The participants were provided with a comprehensive explanation of the research's purpose and nature and gave their informed consent before any data collection occurred. Strict confidentiality was maintained regarding their personal information, and no rewards or incentives were offered to encourage their participation. The research adhered to the principles outlined in the Helsinki Declaration. Approval for the study protocol was obtained from the Institutional Ethics Committee of the university where the research team is affiliated.

RESULTS

A hundred women volunteered to take part to the research. They have been interviewed days after the delivery 5.55±2.41 (range 1-10; median 6): 54% were interviewed in house, 23% in the dispensary and 23% in hospital. The socio-demographic characteristics of the sample are shown in Table 1.

Table 1: Socio-demographic characteristics of the interviewed sample.

Variable	Value
Age (mean±standard deviation; range; median)	32.03±6.20; 21-49; 30
Working (%)	29
Educational level litterate (%) illiterate (%)	 16 85
Provenance Urban (%) Rural (%)	 98 2
Usage of contraception (%)	85
Delivery type Spontaneous vaginal delivery (%) Induced vaginal delivery (%) Cesarean section (%)	 62.4 16.8 19.8

Delivery consultation behavior

As to the delivery, only 2% of the sample consulted traditional experienced women (in the anthropological jargon, *doula*), whilst 54% consulted specialists, 19% general practitioners, 17% experienced women (in French, *sage-femme*), 1% nurses and in the remaining cases, multiple professional figures. Surprisingly, 2% did not consult professionals, but only peer and their social network. In one case, the pregnant woman did not consult anybody.

Decision to breastfeed, schedule and breastfeeding difficulties

Regarding the decision to breastfeed, 74% of the sample had decided to breastfeed before their pregnancy, 18%

during their pregnancy and only 7 immediately after the delivery.

Decision to breastfeed actually depended on having attended a training course ($p<0.0001$), Table 2. Additionally, most women were aware of the importance of breastfeeding and its implications in terms of beneficial effects on their baby's health. Interestingly, 2% of the interviewed sample mentioned religious reasons, and that breastfeeding is encouraged by the Islam and the Qu'ran.

Table 2: Mothers decision de breastfeed according to their educational level, provenance and their participation in educational courses

Decision to breastfeed		Total			X^2	P value	
		Before pregnancy	During pregnancy	After delivery			
Attending a training course	Yes	39	17	0	56	20.079	p<0.001
	No	35	1	7	43		
Provenance	Urban	72	18	8	98	0.72	0.69
	Rural	2	0	0	2		
Literacy Status	literate	63	15	6	84	0.56	0.75
	illiterate	11	3	2	16		

On the impact of prior pregnancies on their decision to breastfeed, on the 29 women who had a previous pregnancy, 22 had breastfed. All but one of these women had breastfed naturally their babies and only 5 of this sample felt that their previous pregnancy did not influence their subsequent breastfeeding decision.

On their breastfeeding schedule, 82% of the women breastfed if the baby required it, 11% when they felt it necessary, and finally 6% because of suggestions and advice from the healthcare personnel. No woman was influenced by their family/household suggestions about breastfeeding scheduling.

When asked for how long it was adequate to breastfeed one's own baby, 16% answered as long as there was milk, 24% as long as the baby did not stop sucking their breast. One subject answered both the reasons, and 8% could or did not answer the question. In general, 51% of the women felt that a duration of 17.6±5.8 months (median 18 months) was adequate, with 70% of the women explaining that such a duration was for the sake of the baby, 13% for practical and organizational reasons, 3% for both reasons, 9% highlighted religious reasons, and 1% of the subjects claimed that the duration was due to both practical and traditional reasons.

On the difficulties of breastfeeding, 70% of the women began to breastfeed their baby without experiencing any difficulties with 34.7% of them reporting that breastfeeding had a soothing/pain-killing effect, and 85.7% describing it as a pleasant moment. From the entire sample, 20% had to use a breast pump and 1% had to manually stimulate their breasts. Of all the subjects, 31(%) reported nipple cracks/fissures.

In the line of gender effects, when being asked whether they experienced or perceived a difference in breastfeeding a male or a female baby, 45% of the women could or did not answer the question, 45% perceived no difference, 9% of the subjects pointed out that female babies were more difficult to breastfeed than male babies, whilst only 1% experienced that male babies were more difficult to breastfeed.

Knowledge and practice of women regarding colostrum

On colostrum knowledge, when asked whether colostrum is similar to milk, 27% of the women responded positively, with 15% of them replying negatively (58% of the women could or did not reply to the question). However, 72% of women were at least aware of the existence of colostrum (in Arabic language, *lba*, and in Amazight language, *adresse* or *akoud*) and defined it as yellow/yellowish and particularly thick and viscous. Curiously, one participant termed it as the "heart" of breast-milk, with several beneficial properties. Some participants (13% of the recruited sample) believed that *lba* has numerous meanings, such as "first milk", "little milk", "yellow milk", "concentrated milk", "essential milk" or "important milk". Relative to the taste of colostrum, 5% of the sample who tasted colostrum and described it as a substance with a taste of sugar (2 women), salt (1 woman), bitter (1 woman), or ferment (1 woman).

The 88.1% of the women stated that colostrum would

be extremely beneficial for their babies. Furthermore, the perception of the nutritional value of colostrum by mothers is not significantly related to course attendance, level of education, or experiencing complications during childbirth.

Table 3: Mothers Perceived nutritional value of colostrum according to some mother related factors

Perceived nutritional value of colostrum		X^2		P value	
		Low	High		
Provenance	Urban	11	87	0.62	0.79
	Rural	0	2		
Literacy Status	Literate	10	74	0.51	0.44
	Illiterate	1	15		
Parity	Primiparous	9	62	0.50	0.33
	Multiparous	2	27		
Previous births complications	No	10	91	0.37	0.34
	Yes	1	18		

Regarding the amount of colostrum administrated, 20% of the women assumed to have fed their babies with an abundant amount of colostrum, 25% with discrete amount, 35% with a sufficient amount and 12% with insufficient amount. This judgment was independent on having experienced difficulties in breastfeeding the baby (p>0.05). However, 2% of the sample did not feed their babies with colostrum.

When asked whether they believed colostrum could be substituted by other nutritional components, only 2% of the women answered positively, (indicating formula milk or plants such as verbena as possibilities of replacement) and 17% said to have no idea. Besides breastfeeding, 40% of the women supplemented the diet of their babies.

When women had to stop breastfeeding, 13% of them decided to extract colostrum, and 12% to throw it away (5% could or did not reply to the question). Noteworthy, one woman decided to give away her colostrum as a gift.

DISCUSSION

Our sample demonstrated generally a good knowledge about breastfeeding's and colostrum's associated practices and properties, even though it captured also some gaps in knowledge and practices that should be properly addressed.

Based on the search findings, concerning the decision to breastfeed, a significant proportion of mothers had made their choice before pregnancy (74%), during pregnancy (18%), or immediately after delivery (8%). In a similar study, 61% of moms made the decision to breastfeed before giving birth[26]. 97% of the women in the sample had made the decision to breastfeed before to giving delivery, according to another study done in Spain[27].

Regarding the reasons for breastfeeding, all the women of our sample were aware of the importance of breastfeeding and its implications in terms of beneficial effects on their baby's health. Similarly, a prior study conducted in Colombia emphasized that mothers identified their infants' health as the main factor influencing their decision to breastfeed, as well as their choice to avoid formula feeding[28]. Interestingly, in our results, 2% of the interviewed sample mentioned religious reasons, and that breastfeeding is encouraged by the Islam and the Qu'ran.

Furthermore, the choice to breastfeed is strongly linked to having participated in a training course ($p<0.0001$). This association was also observed in a study involving a group of Spanish mothers [27]. The influence of previous pregnancies on the decision to breastfeed was apparent among the 29 women who had prior pregnancies, with 22 of them opting to breastfeed. This correlation can be attributed to the positive breastfeeding experiences these women had during their previous pregnancies. Research conducted in Spain reinforces this idea, suggesting that mothers' past breastfeeding experiences influence their decision to breastfeed during pregnancy. This implies that mothers who had positive breastfeeding experiences with previous children are more inclined to choose breastfeeding for subsequent children[27].

Indeed, the decision to breastfeed is a highly personal one and should be a well-informed choice in order to sustain breastfeeding successfully. The intention to breastfeed is a critical factor in initiating the process and ensuring exclusive breastfeeding duration. However, it is

important to recognize that each mother's breastfeeding journey can be influenced by various external factors and societal pressures[29].

To maintain the breastfeeding behavior, it is essential for mothers to receive adequate support and education about breastfeeding during pregnancy and after childbirth. Access to accurate information, counseling, and guidance from healthcare professionals, lactation consultants, or support groups can significantly contribute to a positive breastfeeding experience.

The research findings indicated that 98% of the women asked said they fed colostrum to their infants. This is a positive finding, because colostrum is known to have substantial nutritional content and immune-stimulating qualities, both of which are very advantageous for babies.The high rate of colostrum feeding suggests that Moroccan women possess a good awareness and understanding of the significance of colostrum for their infants' health. This outcome is similar to the results reported by Mohammed and colleagues in Egypt[19], Ipekci and colleagues in Turkey[20],and Khan and coworkers in Pakistan[21].

Additionally, the 88% of the women stated that colostrum would be highly beneficial for their babies. The high percentage of women viewing colostrum as beneficial is promising, as it suggests a growing awareness of its importance in promoting optimal infant health and well-being. This finding reflects the positive impact of efforts made by Moroccan nurses and midwives in all caring facilities and the well-performing national program of pregnancy and birth promotion[30]. According to a research conducted in Northeast Ethiopia, 53.8% of mothers were aware that colostrum is the best food for babies[31]. Likewise, research investigation carried out in Pakistan discovered that colostrum is well recognized for enhancing the well-being, expansion, and maturation of infants as well as guarding against certain medical condition[32].

Additionally, our research revealed that certain women substitute milk with other substances, such as administering verbena alongside milk. This aligns with the findings of Aborigo et al., who documented traditional practices in Northern Ghana including giving newborns water, gripe water, local herbs, or "meaningful foods" like water mixed with guinea corn flour (yara'na)[14]. Davies-Adetugbo described similar practices in Nigeria[33] . In a related Asaro's research, women said that during the first two to three days of their kids' lives, they offer butter, cow milk, or water instead of colostrum because they believe it is bad for their health[34].

The study highlighted the overall good knowledge of breastfeeding and colostrum practices among the participants. This indicates that educational efforts and awareness campaigns on breastfeeding and colostrum have been effective in Morocco. The implementation of a specific women's health program in Morocco, which is monitored with indicators seems to be of great favorable impact. Additionally, the Moroccan government's continuous support for breastfeeding promotion has played a significant role in raising awareness among women. However, the study did identify some gaps in knowledge and practices that should be addressed. It would be helpful to identify specific areas where misconceptions or misunderstandings exist and develop targeted interventions to address these gaps.

One of the important implications of the study is the need to correct misconceptions about certain breastfeeding practices. This suggests that there may be cultural or traditional beliefs that influence breastfeeding behaviors and that may not align with best practices. By addressing and correcting these misconceptions, it is possible to ensure that women receive accurate information and can make informed decisions about breastfeeding.

Furthermore, the study emphasizes the importance of reinforcing women and expectant mothers' education. This suggests that continuous education and awareness programs should be implemented to ensure that all women have access to accurate and up-to-date information about the benefits of colostrum and its role in early infant nutrition.

While the present study provides valuable insights into the knowledge and practice of this essential aspect of maternal and newborn health, it is essential to acknowledge some limitations. Firstly, the study's sample size of 100 participants may not fully represent the diverse population of Moroccan women, limiting the generalizability of the findings to a broader context. A larger and more diverse sample could have provided a more comprehensive understanding of the

knowledge and practices related to breastfeeding and colostrum in the country. the data was collected through a questionnaire, which may be subject to response bias. Participants might have provided socially desirable answers or may not recall their practices accurately. The reliance on self-reported data may also pose limitations on the study's objectivity.

CONCLUSION

This cross-sectional survey represents the first investigation carried out in Morocco on breastfeeding knowledge and practices, as well as on colostrum consumption, as an indicator of women psychological and reproductive health[35-44]

Colostrum administration is a widely practiced custom, and the findings of the current study indicate that the knowledge regarding colostrum and breastfeeding is generally sufficient. However, there is a need for increased efforts to promote and establish a culture of natural breastfeeding and raise awareness among Moroccan women. By addressing external influences and promoting the significance of breastfeeding, we can empower women to make informed choices and embrace colostrum feeding for the well-being of both mothers and newborn.

ACKNOWLEDGMENTS

Informed consent:

Informed consent was obtained from all individual participants involved in the study.

Funding

This research has been supported by "Le Centre National de Recherche Scientifique et Technique, Maroc: (Cov/2020/28)" , the European Union and the French *Agence Nationale de la Recherche* (ANR) and by the "Lifelong Learning Observatory (UNESCO).

Informed consent

Informed consent was obtained from all individual participants involved in the study.

Conflict of Interests Statement

The authors declare no conflict of interest.

ETHICAL CLEARANCE

In order to address ethical concerns, the research's anonymity was preserved, and national and international ethical standards were respected. The study was approved by the Ethics Committee of the university where the research team was affiliated.

AUTHORS'S CONTRIBUTION

Data gathering and idea owner of this study: Hicham Khabbache, Francesco Chirico and Kawtar Khabbach; Study design: Driss Ait Ali and Amelia Rizzo; Data gathering: Hannane El Ghouate and Driss Ait Ali; Writing and submitting manuscript: Driss Ait Ali and Nicola Bragazzi; Editing and approval of final draft: Hicham Khabbache, Driss Ait Ali, Hannane El Ghouate, Nicola Bragazzi, Kawtar Khabbach, Amelia Rizzo, and Francesco Chirico.

REFERENCES

1. Phukan D, Ranjan M, Dwivedi LK. Impact of timing of breastfeeding initiation on neonatal mortality in India. *Int Breastfeed J*. 2018;**13**(1):1-10. doi:10.1186/s13006-018-0162-0
2. Yeshambel Wassie A, Atnafu Gebeyehu N, Abebe Gelaw K. Knowledge, Attitude, and Associated Factors towards Colostrum Feeding among Antenatal Care Attendant Mothers in Gununo Health Centre, Wolaita Zone, Ethiopia 2019: Cross-Sectional Study. *Int J Pediatr (United Kingdom)*. 2020;2020. doi:10.1155/2020/3453502
3. Menekse D, Suzan ÖK, Cinar N, Caner İ. Can oral administration of colostrum increase the success of first breastfeeding in premature babies? A study of four cases. *Bangladesh J Med Sci*. 2022;**21**(4):912-917. doi:10.3329/bjms.v21i4.60239
4. Afroze S, Biswas A, Begum NA, Ng YPM. Exclusive Breast feeding in the 21st Century: a Roadmap to success in South Asia. *Bangladesh J Med Sci*. 2021;**20**(4):725-731. doi:10.3329/BJMS.V20I4.54126
5. Luan NN, Wu QJ, Gong TT, Vogtmann E, Wang YL, Lin B. Breastfeeding and ovarian cancer risk: a meta-analysis of epidemiologic studies. *Am J Clin Nutr*. 2013;**98**(4):1020-1031. doi:10.3945/AJCN.113.062794
6. Adhikari M, Khanal V, Karkee R, Gavidia T. Factors associated with early initiation of breastfeeding among Nepalese mothers: Further analysis of Nepal Demographic and Health Survey, 2011. *Int Breastfeed J*. 2014;**9**(1):1-9. doi:10.1186/S13006-014-0021-6/TABLES/2
7. Patel A, Banerjee A, Kaletwad A. Factors Associated with Prelacteal Feeding and Timely Initiation of Breastfeeding in Hospital-Delivered Infants in India. http://dx.doi.org/101177/0890334412474718. 2013;**29**(4):572-578. doi:10.1177/0890334412474718
8. Victora CG, Bahl R, Barros AJD, et al. Breastfeeding in the 21st century: Epidemiology, mechanisms, and lifelong effect. *Lancet*. 2016;**387**(10017):475-490. doi:10.1016/S0140-6736(15)01024-7
9. Khan J, Vesel L, Bahl R, Martines JC. Timing of Breastfeeding Initiation and Exclusivity of Breastfeeding During the First Month of Life: Effects on Neonatal Mortality and Morbidity—A Systematic Review and Meta-analysis. *Matern Child Health J*. 2015;**19**(3):468-479. doi:10.1007/S10995-014-1526-8/METRICS
10. Amaje E, Gebremeskel F, Tufa G, Gelchu M, Wayessa ZJ. Colostrum Avoidance Practices and Its Associated Factors among Mothers of Children Aged Less Than 12 Months in Jinka Town, South Ethiopia, 2020. A Community Based Cross Sectional Study. *Heal Serv Res Manag Epidemiol*. 2022;9. doi:10.1177/23333928221106056
11. Mukherjee K, Venugopal PN. Colostrum Avoidance and Breastfeeding Practices Among Mothers of Khos Tribal Community of Uttarakhand: A Community-Based Cross-Sectional Study. *J Anthropol Surv India*. 2018;**67**(1):45-55. doi:10.1177/2277436x20180105
12. Gebreyesus H, Girma E, Cherie N. COLOSTRUM AVOIDANCE AND ASSOCIATED FACTORS AMONG MOTHERS OF CHILDREN AGED LESS THAN 12 MONTHS IN KOMBOLCHA TOWN, SOUTH WOLLO ZONE, ETHIOPIA. *Med Res Chronicles*. 2017;**4**(05):545-559. Accessed May 1, 2023. http://www.medrech.com/index.php/medrech/article/view/274
13. Sharma IK, Byrne A. Early initiation of breastfeeding: A systematic literature review of factors and barriers in South Asia. *Int Breastfeed J*. 2016;**11**(1):1-12. doi:10.1186/S13006-016-0076-7/TABLES/3
14. Aborigo RA, Moyer CA, Rominski S, et al. Infant nutrition in the first seven days of life in rural northern Ghana. *BMC Pregnancy Childbirth*. 2012;**12**(1):1-10. doi:10.1186/1471-2393-12-76/FIGURES/1
15. Legesse M, Demena M, Mesfin F, Haile D. Factors associated with colostrum avoidance among mothers of children aged less than 24 Months in Raya Kobo district, North-eastern Ethiopia: Community-based cross-sectional study. *J Trop Pediatr*. 2015;**61**(5):357-363. doi:10.1093/tropej/fmv039
16. Degefie T, Amare Y, Mulligan B. Local understandings of care during delivery and postnatal period to inform home based package of newborn care interventions in rural Ethiopia: A qualitative study. *BMC Int Health Hum Rights*. 2014;**14**(1):1-6. doi:10.1186/1472-698X-14-17/PEER-REVIEW
17. Adugna DT. Women's perception and risk factors for delayed initiation of breastfeeding in Arba Minch Zuria, Southern Ethiopia. *Int Breastfeed J*. 2014;**9**(1):1-8. doi:10.1186/1746-4358-9-8/TABLES/4
18. Dhingra U, Gittelsohn J, Suleiman AM, et al. Delivery, immediate newborn and cord care practices in Pemba Tanzania: A qualitative study of community, hospital staff and community level care providers for knowledge, attitudes, belief systems and practices. *BMC Pregnancy Childbirth*. 2014;**14**(1):1-11. doi:10.1186/1471-2393-14-173/FIGURES/1
19. Mohammed ES, Ghazawy ER, Hassan EE. Knowledge, Attitude, and Practices of Breastfeeding and Weaning Among Mothers of Children up to 2 Years Old in a Rural Area in El-Minia Governorate, Egypt. *J Fam Med Prim Care*. 2014;**3**(2):136. doi:10.4103/2249-4863.137639
20. Ipekci MM, Ertem M. Infant Feeding Knowledge and Practices of Mothers with 6–24-Month-Old Babies in the "Baby-Friendly City" of Diyarbakir. https://home.liebertpub.com/bfm. 2012;**7**(6):535-542. doi:10.1089/BFM.2011.0115
21. Khan GN, Memon ZA, Bhutta ZA. A cross sectional study of newborn care practices in Gilgit, Pakistan. *J Neonatal Perinatal Med*. 2013;**6**(1):69-76. doi:10.3233/NPM-1364712
22. Gul S, Khalil R, Yousafzai MT, Shoukat F. Newborn care knowledge and practices among mothers attending pediatric outpatient clinic of a hospital in Karachi, Pakistan. *Int J Health Sci (Qassim)*. 2014;**8**(2):167. doi:10.12816/0006083

23. Slama F Ben, Ayari I, Ouzini F, Belhadj O, Achour et N. Exclusive breastfeeding and mixed feeding: Knowledge, attitudes and practices of primiparous mothers. *East Mediterr Heal J*. 2010;**16**(6):630-635. doi:10.26719/2010.16.6.630
24. MS A-J, BM E-B, SK M, AA A-N. Infant feeding in Saudi Arabia: mothers' attitudes and practices. *East Mediterr Heal J*. 2006;**12**(1-2):6-13. Accessed July 17, 2023. https://apps.who.int/iris/handle/10665/117048
25. Ait Ali Sidi Mohamed Ben D, El Khiat A, KHabbache Sidi Mohamed Ben H, et al. Original Article in Occupational Health. Accessed February 11, 2024. https://www.researchgate.net/publication/377300298
26. Declercq ER, Sakala C, Corry MP, Applebaum S. Listening to Mothers II: Report of the Second National U.S. Survey of Women's Childbearing Experiences. *J Perinat Educ*. 2007;**16**(4):9-14. doi:10.1624/105812407x244769
27. Ballesta-Castillejos A, Gómez-Salgado J, Rodríguez-Almagro J, Ortiz-Esquinas I, Hernández-Martínez A. Factors that influence mothers' prenatal decision to breastfeed in Spain. *Int Breastfeed J*. 2020;**15**(1):1-9. doi:10.1186/S13006-020-00341-5/TABLES/4
28. Radzyminski S, Callister LC. Mother's Beliefs, Attitudes, and Decision Making Related to Infant Feeding Choices. *J Perinat Educ*. 2016;**25**(1):18. doi:10.1891/1058-1243.25.1.18
29. Maponya NM, Matlala SF. "They shouted at me to discontinue exclusive breastfeeding": narratives of mothers in Limpopo Province of South Africa as they grabble with exclusive breastfeeding. *Bangladesh J Med Sci*. 2022;**21**(4):813-819. doi:10.3329/BJMS.V21I4.60255
30. Ait Ali D, Fazaz M, Ounaceur B, et al. Motivational factors influencing nurses' participation in continuing education sessions: A hospital-based study. *J Adult Contin Educ*. Published online November 23, 2022. doi:10.1177/14779714221140925
31. Mesfin T, * KW, GB and M. Tadese M, et al., *Clinical Case Reports International-General Medicine.* Published online 2022. Accessed July 18, 2023. http://clinicalcasereportsint.com/
32. Aisha R, Batool F, Sultana S, Aisha R, Batool F, Sultana S. Knowledge, Attitude and Practices about Colostrum Feeding among Pregnant Women in Military Hospital Rawalpindi of Pakistan. *Open J Nurs.* 2016;**6**(4):309-313. doi:10.4236/OJN.2016.64032
33. Davies-Adetugbo AA. Promotion of breast feeding in the community: Impact of health education programme in rural communities in nigeria. *J Diarrhoeal Dis Res*. 1996;**14**(1):5-11. Accessed July 28, 2023. https://www.jstor.org/stable/23498552
34. Asaro TB, Gutema BT, Weldehawaryat HN. Colostrum avoidance practice and associated factors among mothers of infants less than six months in Chencha District: cross-sectional study. *BMC Nutr*. 2023;**9**(1). doi:10.1186/s40795-023-00674-4
35 Rizzo A. Temperament and Generativity during the life span. *Mediterr J Clin Psychol.* 2013;**1**(!):1-31.
36. Settineri S, Le Donne M, Rizzo A, Spanò G, Mento C. Vulvovestibulitis syndrome: the role of Temperament and Mood in Women. *Eur J Pers Cent Healthc*. 2016:**4**(4):618-623.
37. Rizzo A, Marra P. Temperament, Character and Organisational well-being among Obstetrics and Gynaecology Personnel: a pilot study. *Quaderns de Psicologia*. 2023;**25**(3):9.
38. Mento C, Le Donne M, Crisafulli S, Rizzo A, Settineri S. BMI at early puerperium: Body image, eating attitudes and mood states. *J Obstet Gynaecol.* 2017 May;**37**(4):428-434. doi: 10.1080/01443615.2016.1250727.
39. Rizzo A, Bruno A, Torre G, Mento C, Pandolfo G, Cedro C, et al. Subthreshold psychiatric symptoms as potential predictors of postpartum depression. *Health Care Women Int.* 2022 Jan-Mar;**43**(1-3):129-141. doi: 10.1080/07399332.2021.1963730.
40. Settineri S, Le Donne M, Dritto IP, Rizzo A, Mento C. The Rorschach in gynecological suffering: representations and complexes of the VI table. *Mediterranean J Clin Psychol*. 2015;**3**(2). Doi: 10.6092/2282-1619/2015.3.1089.
41. Bruno A, Celebre L, Mento C, Rizzo A, Silvestri MC, De Stefano R, et al.. When fathers begin to falter: a comprehensive review on paternal perinatal depression. *Int J Environ Res Public Health.* 2020;**17**(4):1139.
42. Cedro C, Mento C, Piccolo MC, Iannuzzo F, Rizzo A, Muscatello MRA, et al. Sexual Desire and Body Image. Gender Differences and Correlations before and during COVID-19 Lockdown. *Int J Environ Res Public Health*. 2022;**19**(7):4351.
43. Afolabi AA, Adebowale AS, Oni TO, Akinyemi AI. Unintended pregnancy among older married women of reproductive age in a city in Southwest Nigeria: A household based study. *Adv Med Psychol Public Health*. 2024;**1**(3):110-124. Doi: 10.5281/zenodo.10900416.
44. Romeo P, Bulla S, Marra P, D'Anna R. What women want: unveiling predisposition to vaginal birth in an Italian population. *Adv Med Psych Public Health* 2024;**1**(3):143-155. Doi: 10.5281/zenodo.