

## Colostrum knowledge among Saudi mothers in Jeddah, Saudi Arabia

Steve Harakeh,<sup>1</sup> Musab Almatrafi,<sup>2</sup> Rahma Bukhari,<sup>3</sup> Turki Alamri,<sup>4</sup> Salah Barnawi,<sup>5</sup> Sunil Joshi,<sup>6</sup> Mohammed Al Muhayawi,<sup>7</sup> Ghadeer Basunbul,<sup>8</sup> Marwana Alazraqi,<sup>9</sup> Areej Al-Khalidy,<sup>10</sup> Lamia Shaala,<sup>11</sup> Abdullah Alshehri,<sup>12</sup> Sultan Al Amri,<sup>13</sup> Soad Aljaouni<sup>14</sup>

### Abstract

**Objective:** To assess the knowledge level of Saudi women about colostrum for the newborns.

**Methods:** The cross-sectional study was conducted from October 2015 to June 2016 at the Gynaecological Clinics of King Abdulaziz University Hospital, Jeddah, Saudi Arabia and comprised lactating mothers in the community. Data was collected using a pretested questionnaire. Data was analysed using SPSS 22.

**Results:** Of the 552 mothers, 301 (54.5%) were age >30 years. The source of information about colostrum was friends and family for 367 (66.67%) subjects. Overall, 367 (66%) had high knowledge about colostrum. A significant correlation was detected between age and knowledge about colostrum composition and duration ( $p < 0.05$ ); as well as between educational level and colostrum composition, colour and form ( $p < 0.05$ ). A significant association between occupational status and knowledge about colostrum colour and form was also noted ( $p < 0.05$ ).

**Conclusion:** Saudi mothers were found to have a good knowledge about colostrum and its benefits.

**Keywords:** Colostrum knowledge, Breastfeeding, Pregnancy, Newborn, Immunity. (JPMA 70: 2221; 2020)

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### Introduction

Colostrum constitutes secretions of the mammary glands of mammals in late stages of pregnancy and just before giving birth and remains for the first few days of early breastfeeding.<sup>1</sup> Colostrum has a higher nutritional value than milk.<sup>2-4</sup> For this reason, colostrum is a good source of nutrients for the newborns as they cannot consume a lot of milk due to their premature digestive system. It has laxative potential, helps to release the first stool and helps to eliminate excess bilirubin which causes jaundice in babies when the level is high.<sup>5</sup> It is rich in antibodies and immunoglobulins (Igs), such as IgA, IgG and IgM, for the protection of the baby from infections.<sup>3,6,7</sup> There are other immune substances that are found in colostrum, such as complement and proline-rich

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<sup>1</sup>Special Infectious Agents Unit, King Fahd Medical Research Center (KFMRC), King Abdulaziz University (KAU), Jeddah, <sup>2</sup>Yousef Abdullatif Jameel Scientific Chair of Prophetic Medicine Application, Faculty of Medicine (FM), KAU. <sup>3</sup>Obstetrics and Gynecology Department, King Abdulaziz Medical City, National Guard Health Affairs. <sup>4</sup>Pharmacy Department, Dr.Solaiman faqeeh Hospital. <sup>5</sup>Family and Community Medicine Department, Faculty of Medicine in Rabigh, KAU, Jeddah, <sup>6</sup>Community Medicine Dept., Kathmandu Medical College, 44600 – Nepal. <sup>7</sup>Department of Medical Microbiology/Parasitology and Molecular Microbiology Laboratory, King Abdulaziz University Hospital (KAUH), KAU. <sup>8</sup>Faculty of Dentistry, KAU. <sup>9</sup>University Medical Services Center, KAU. <sup>10</sup>Clinical Nutrition Department, Faculty of Applied Medical Science, KAU. <sup>11</sup>Natural Product Unit, KFMRC, KAU. <sup>12</sup>Security Forces Hospital, Riyadh, Saudi Arabia. <sup>13</sup>King Abdulaziz Hospital, Ministry of Health, Jeddah, Saudi Arabia. <sup>14</sup>Department of Hematology/ Pediatric Oncology, KAUH, FM, KAU.

**Correspondence:** Steve Harakeh. Email: [sharakeh@gmail.com](mailto:sharakeh@gmail.com)

peptide, which is important in fighting against bacterial, viral infections, diarrhoea and various cancers and diseases, lacto-peroxidase, lysozyme and lacto-ferrin.<sup>8-10</sup> In addition, it has growth factors and cytokines.<sup>11</sup> Breastfeeding is very important for the newborn and is even mentioned many times in the Quran, the holy book of Islam. One of them in Surah Al-Baqarah [2:233] says: "Mothers may breastfeed their children two complete years for whoever wishes to complete the nursing."<sup>12</sup> The importance of colostrum feeding to newborns is thus essential for better health.

Colostrum feeding improves the growth and development of neonates. The incidence of infant deaths can be drastically reduced by encouraging mothers to breastfeed.<sup>13</sup> The Saudi Arabian society includes women coming from different backgrounds. Many mothers avoid colostrums-feeding because of certain cultural beliefs, lack of knowledge, ignorance, undesirable socio-cultural beliefs and misconceptions.<sup>14</sup> The current study was planned to evaluate the knowledge level of lactating Saudi mothers regarding the importance of colostrum in the life of newborns.

### Subjects and Methods

The cross-sectional study was conducted between October 2015 and June 2016 at the Gynaecological Clinics of King Abdulaziz University Hospital, Jeddah, Kingdom of Saudi Arabia (KSA). After approval from the institutional ethics review committee, the sample size was calculated using OpenEpi calculator to detect 50% good and excellent knowledge with a confidence level

(CL) of 95%.<sup>15</sup> Against the required sample size of 384, >40% more individuals were enrolled to compensate for non-respondents and incomplete data variables. The sample was raised from the community using simple random sampling method. Those included were mothers residing in Jeddah who had already delivered a baby. Those who had not give birth and visitors were excluded.

Data was collected using a questionnaire that was distributed to potential subjects in schools, houses, hospitals and public places, such as malls and coffee shops. After taking written informed consent. The participants were interviewed by women and the names of the subjects were not revealed.

The questionnaire was generated in the Arabic language and its content was validated and approved by experts including a paediatrician, an epidemiologist and a nutritionist. It was distributed for the purpose of pre-testing to 20 respondents who were women and not part of the study. Modifications were made on the basis of feedback from them. The questionnaire included information about age, marital status, educational level, residence, type of housing, working status and salary. General information about colostrum related to composition, duration of flow, characteristics and appearance was also part of the questionnaire. Information was also sought about the source of knowledge and whether the physician had advised the mothers to breastfeed their infants with colostrum and general information about disease and family history. A certain scoring system was followed based on the correct responses to the different questions by taking symmetric interval length according to maximum and minimum score. Data was analysed using SPSS 22. Different demographic variables were associated with knowledge and related questions using cross-tabulation, Chi-square test and multinomial logistic regression methods.  $P < 0.05$  was considered significant.

## Results

Of the 650 questionnaires distributed, 552(84.9%) mothers returned the questionnaire duly completed. Of them, 301(54.5%) were aged >30 years; 369(66.8%) were housewives; 148(27%) were full-time employees; 30(5.4%) were part-timers; 229(41.5%) were bachelor degree holders; 168(30.4%) had secondary level education; 106(20%) respondents' family income ranged between Saudi Riyal (SR) 6,000 and SR 9,000; 102(19%) respondents' family income was >SR12,000; 514 (93.1%) were married at the time of the study while the rest were

**Table-1:** Sources of information about colostrum (n=552 women).

Source of knowledge about "Colostrum"	Yes	%	No	%
Obstetrician	117	21.3	433	78.7
Paediatrician	37	6.7	513	93.3
Media	49	8.9	501	91.1
Scientific books	59	10.7	491	89.3
Internet	65	11.8	485	88.2
Family members	367	66.7	183	33.3
Other sources	89	16.2	461	83.8
Never had any previous knowledge	10	1.8	540	98.2

**Table-2:** Knowledge about Colostrum formation, duration, and color and appearance.

		Frequency	Percent	
Colostrum Formation	Poor	224	40.6	
	Good	216	39.1	
	High	112	20.3	
	Total	552	100.0	
Colostrum Duration	Poor	104	18.8	
	Good	219	39.7	
	High	229	41.5	
	Total	552	100.0	
Colostrum Color & Appearance	Poor	188	34.1	
	Good	153	27.7	
	High	211	38.2	
Full Knowledge	Total	552	100.0	
	Poor	106	19.2	
	Good	278	50.4	
	High	168	30.4	
		Total	552	100.0

divorced or widowed; 381(69%) were residing in an apartment; 124(22.5%) were residing in a villa; 42(7.6%) were residing in private houses; 5(1%) did not provide information about their accommodation; 266(48.2%) were living in a rented accommodation; 261(47.3%) were in an owned accommodation; and 25(4.5%) did not answer the query.

Regarding the source of knowledge about colostrum, for 367(66.7%) mothers the source was family members, followed by obstetrician/gynaecologist for 117(21.3%) (Table-1).

Overall, 525(95.1%) mothers recognised colostrum; 492(89.1%) acknowledged colostrum's benefits; 304(55.1%) knew about its availability exclusively in mother's milk; 226(41.5%) said colostrum was formed during the last trimester of pregnancy; 234(42.5%) did not reply that it was formed immediately after delivery; and 296(54.6%) did not think that colostrum was formed when the mother starts feeding her child.

**Table-3:** Distribution of educational levels, marital status and occupational status with different knowledge parameters.

		Educational Level							p-value	Marital State			p-value	Occupational Status			p-value
		None	Primary	Intermediate	Secondary	Diploma	Bachelor	Higher Education		Married	Divorced	Widowed		Worker (Full time)	Worker (Part time)	House makers	
Knowledge about Colostrum Composition	Poor	8	14	24	42	13	107	16	.000**	205	10	5	.452	67	17	139	.059
	Good	7	20	12	72	8	82	15		202	5	6		57	11	145	
	High	3	5	4	54	2	40	4		107	2	1		24	2	86	
Knowledge about Colostrum duration	Poor	2	9	11	32	5	42	3	.216	95	4	1	.165	27	5	71	.980
	Good	7	21	12	73	6	86	14		198	10	7		60	11	147	
	High	9	9	17	63	12	101	18		221	3	4		61	14	152	
Knowledge about Colostrum Color and form	Poor	9	18	18	71	9	55	8	.000**	171	10	3	.236	35	7	144	.004**
	Good	7	11	11	45	6	69	4		145	3	3		41	9	102	
	High	2	10	11	52	8	105	23		198	4	6		72	14	124	
Full knowledge about colostrum	Poor	2	9	11	32	6	43	3	.216	95	6	0	.013	25	7	73	.834
	Good	12	22	23	74	10	117	20		256	11	9		77	16	183	
	High	4	8	6	62	7	69	12		163	0	3		46	7	114	

Regarding the duration of flow/presence of colostrum, 433(78.4%) mothers knew that colostrum was not present in the breast milk for 2 years after delivery and 277(50.2%) agreed that colostrum stayed only for 3 days after delivery. Regarding characteristics of colostrum, 263(47.7%) subjects disagreed that colostrum was a colourless substance mixed with mother's milk; 444(80%) agreed that colostrum was a sticky yellow substance mixed with mother's milk; and 351(63.6%) did not agree that colostrum was normal blood expressed in mother's milk.

Overall evaluation showed that 328(60%) women had knowledge about colostrum formation; 448(81.2%) had a high or good knowledge about colostrum duration; and 211(38.2%) had a high knowledge about colostrum colour and appearance (Table-2).

Correlation between colostrum knowledge parameters was worked out with age, marital status and occupations stud of the subjects (Table-3).

## Discussion

The participants were very knowledgeable about colostrum (95.1%). These figures are much higher than the ones obtained in a study conducted in Nepal (74% colostrums).<sup>5</sup> Such a discrepancy could be related to the educational level of the participants. In the Nepalese study, the majority of those surveyed were uneducated and came from rural areas.<sup>5</sup> The sample in the current study lived in Jeddah which is a big cosmopolitan city and were mostly educated with high monthly family income.

The main source of knowledge about colostrum among our sample was family and friends (66.7%), which is in contrast to only 30% reported both from Nepal and Pakistan<sup>5,11</sup> and 21.4% as reported from Ethiopia.<sup>16</sup> In this part of the world, women depend on knowledge received from family and friends and the antenatal clinics do not usually provide much information to the expecting mothers.<sup>17</sup> However, women in the developed countries obtain their information related to pregnancy and birth from many different sources, including doctors, midwives, family and friends, television programmes, leaflets, internet and newspapers.<sup>18</sup> A study in Dhaka indicated that pregnant women got most of their information from clinics, textbooks, media, internet and television.<sup>19</sup> The uncertainties in the responses of our participants could be attributed mainly to the fact that the sources of knowledge of the study group were family and friends who were not professional healthcare workers and as a result, misunderstandings and misconceptions are expected.

Data indicated decent percentage of our women participants who had high or good knowledge about colostrum formation, duration, colour and appearance. It was reported in an Ethiopian study that a lower percentage of the group (59.2%) knew that colostrum is thick, sticky and yellowish in colour.<sup>20</sup> Again, this could be due to the socioeconomic status of the study group and differences related to educational level as well as the income of the participants.

Concerning the benefits of colostrum, 89.1% realised

that colostrum is extremely beneficial to the infant. This is in contrast to a recent study conducted in Dhaka where most of the respondents had very poor knowledge regarding advantages of colostrum feeding (87%).<sup>21</sup>

In another study, an overall categorisation among 50 sample selected, 15 (30%) were found to have adequate knowledge regarding breastfeeding and colostrum feeding, 29(58%) had moderate knowledge compared to 6 (12%) who had inadequate knowledge; overall, only 25 (50%) subjects practised colostrum feeding.<sup>22</sup>

In a study in Nepal, only 25% women knew about the benefits of colostrum, which is much lower than the results obtained in the current study.<sup>5</sup> These results are much lower than those reported in an Indian study where 56% responded correctly concerning the benefits of colostrum.<sup>14</sup>

According to a study done in Egypt, 83.7% participants knew that colostrum increased the immunity of the baby and 30.2% mothers reported that it is the first protection against infection.<sup>19</sup>

According to one study in southern Zambia, it was perceived by urban women that colostrum was highly beneficial to the child.<sup>23</sup> Only few thought it would be dirty and should not be used and grandmothers favoured colostrum except some Muslim grandmothers who believed that it should be substituted by honey or water supplements. Similar results regarding the benefits of colostrum were reported by a study in Pakistan, where 88.8% mothers considered colostrum to be an integral part of the infant diet.<sup>24</sup>

Quite a few mothers still think that colostrum was related to illness and was unsafe for consumption and should not be used. There are many factors associated with the mother's decisions for not feeding colostrum to their newborn. Such factors include the mother's lack of knowledge on when to initiate breastfeeding and poor understanding on the beneficial effects of colostrum feeding on the overall well-being of the newborn.<sup>24,25</sup> Some mothers also believe that colostrum should be thrown out because of its colour and sometimes following advices from their misinformed in-laws. It was also reported that few mothers believed that milk is not produced during the first few days after delivery.<sup>18,19,24</sup> Other factors included the inability of the babies to suckle breast-milk because of deformities, sickness and other delays caused by bathing and cleaning of the baby and the mother. This is an addition to family and birth

attendants' discouragement of early breastfeeding to the new mothers.<sup>18,24</sup>

The limitation of the current study is that the information obtained from mothers might be tainted by recall bias. Besides, the study also shares the limitation of a cross-sectional study design.

In the light of the findings, however, it is recommended that nationwide studies be conducted, representing the view of women from the rural areas of the kingdom for providing a deeper understanding of women's attitude toward colostrum. More educational campaigns are imperative with a focus on educating women about the importance of colostrum for the overall wellbeing of the newborn.

## Conclusion

Saudi mothers were found to have good knowledge about colostrum and its benefits. They received their information from family members and their gynaecologists. They had good knowledge about its formation, duration, colour and appearance. Age and educational level significantly affected their knowledge about colostrum.

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**Conflict of Interest:** None.

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