Knowledge and Practices of Mothers Having Under weight Infants

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Abstract

Aim: Underweight remains one of the most common causes of morbidity and mortality among infants in low-income countries, over two-thirds of these deaths, which are often associated with inappropriate feeding knowledge and practices, such as breastfeeding and complementary feeding are responsible for one-third of the causes of underweight in infants. **Subjects and methods**: **Design**, descriptive design was used in this study. **Setting:** This study was carried out in 10 Maternal and Child Health centers at south Giza script that consisted of three villages Essaf, Atfeh& Alaiat. **Subjects:** Purposive sample of mothers who attending MCH centers and who have underweight infants. **Tool,** three tools were used in this study structured interview schedule, check list and physical assessment of the infants.**The results** of this study showed that 98% of the study sample were having unsatisfactory total knowledge about underweight with highly significant statistical difference X^2 =243.3 at p=0.0000. majority of the study sample were having poor practices regarding personal hygiene, breast feeding and weaning with highly significant statistical difference X^2= 212.9 at p= 0.0000.**Conclusion**: it can be concluded that there are unsatisfied level of mothers 'knowledge and poor practices regarding underweight. **Recommendation:** educational intervention programs for illiterate, adolescent mothers about infants' underweight

Key words: Underweight, infant, knowledge, practices.

Introduction

Infants gain weight and grow more rapidly than at any other time in life **(Kathleen, et al., 2020).** Balanced and sufficient nutritional intake is most essential for infants to promote optimal growth and development, to protect and maintain health **(Datta, 2018).** Breast feeding has documented short and long-term medical and neurodevelopmental advantages and rare contraindications thus breast feeding should be continued with the introduction of complementary food for 1 year or longer as mutually desired by mother and infant. The success of breastfeeding initiation and continuation depend on multiple factors such as education about breastfeeding, hospital breastfeeding practices and policies, routine and timely follow up care and family and societal support,, **(Kliegman, 2020)**. Underweight is gaining weight at a slower rate than other infants who are the same age and sex. "Normal" ranges for weight are based upon the weight of

thousands of infants. Standard growth charts are published by the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) **(Kathleen et al., 2020).** There are many contributing factors which lead to being underweight in infants These include low birth weight of infants, poor exclusive breast feeding, discouraged complementary diet, dietary diversity, parent's education, lack of nutrition knowledge, family planning, income status, limited access to adequate food and poor immunisation status **(Adhikari et al., 2017; Kumar et al., 2019)**. In Egypt, underweight is associated with poor access to a balanced diet among the poorest sections of society, as well as poor dietary habits, lifestyle and lack of nutritional awareness across the population, **UNICEF, (2020).** Mother is a significant person during infancy and she is mainly responsible for maintenance of nutrition and for the promotion of health during this period. First 6 months of infancy depends upon breastfeeding and second half of infancy is the important period to become accustomed with

family diet. Mother needs guidance for breastfeeding information should be given regarding positioning, feeding schedule, timing, feeding technique, satisfaction of the infant, adequacy indicators and other aspects include maternal diet, manual expression of breast milk, possible problems related to breastfeeding and remembering the importance of breastfeeding for nutritional and trusting relationship, mother should be encouraged to ask questions and her concern about breastfeeding, nurse or other team members should discuss the questions asked by the parents and family members with scientific aspects of breastfeeding and help them to solve problems and to promote the infant growth (**Datta,2018**).

Significance of study:

According to Global Nutrition Report, Egypt has made no progress toward achieving the target of maternal, infant and young child toward underweight with 9.5% of children under 5 years, direct causes of underweight are poor infant and young child feeding practices where there is decline of exclusive breastfeeding rate from 34% to 29% and also food insecurity, poor access to balanced diet among poorest sections of society and lack of awareness (**UNICEF, 2021**).

Aim of the study

1-Assess knowledge of mothers having underweight infants.
2-Assess practices of mothers having underweight infants.
3- Assess relation between mothers' knowledge and practices.
4- Assess relation between mothers' knowledge, practices and underweight infants.

Subjects and Methods

Research Design:

Descriptive design was used in this study.

Technical Design:

The technical design includes, the setting, subjects and study tools that were used in the study.

A- Research setting:

This study was conducted at south Giza Script which consists of three villages were Esaff, Atfeh and Alaiat, they were located at a distance approximately 45km, 65km, and 55km respectively from the middle of cairo, and so, Esaff, Atfeh lies the east of the river but Alaiat is west of the river, there weren't pure water, sanitation and close contact with animal. Population had certain belief, habits and culture toward education of girls where they preferred that girl was married in young age, health and feeding infants where give new born pre lactic fluids as glucose and so gave water or peppermint during breast feeding periods, infant not have own utensils. Finally the study included 90 mother and child health centers (MCH) and distributed as follow Essaf included 28 MCH, Atfeh included 30 MCH and Alaiat included 32 MCH, choose the numbers of MCH systematically after every ten MCH as follow, from Esaff were taken three MCH were namely Shorfa village, Dicmy village and Esaff Ebalad MCH. Atfeh were taken three MCH were Atfeh MCH, Ekebabat MCH and korimat MCH. Alaiat were taken three.MCH were Alaiat MCH, Kafer ElRafaai MCH and ElRika MCH, where 9 MCH compromise this study.

B- Research Subjects:

Type of the sample:

Non- probability (purposive) sample was used in the current study.

Sample Size:

A purposive sample were used in this study where primary health sector statistics stated that total numbers of under -weight infants at 2018 annual reports at Esaff were 260 underweight infants, Atfeh were 300 underweight infants, and alaiat were 760 underweight infants where total numbers of underweight infants were 1320. The sample size was calculated using the following equation:

$$n = \left(\frac{Z_{1-\alpha/2} + Z_{1-\beta}}{ES} \right)^2$$

Zα = Standard normal deviate for α = 1.9600.
Zβ = Standard normal deviate for β = 0.8416.
B = (Zα + Zβ)2 = 7.8489.
C = (E/SΔ)2 = 0.0400.
N = B/C = 196.2218.
n = $(\frac{1.96+0.84}{0.0400})^2$ = 196.2218. ≈ 196 mothers

Sample size will be 196 mothers to achieve a power of 95% and a level of significance of 5% (two sided), assuming improvement 20% **(Rosner, 2016).**The sample size was 200 mothers having underweight infants have willing to participate in the study. 5% (10) of the subjects were excluded in a pilot study.

• **Inclusive criteria**

Underweight infants who their age were from two month to 12 months, full term, breastfeeding, and their weight were about 3.5 Kg to 8.5 Kg,

C- Tools of the study

• Three tools were developed by the researcher to obtain necessary data depending on the review of literatures.

• **Tool I: Structured interview schedule**

• **Part 1: Sociodemographic characteristics** about infants and their mothers: (age – gender- Rank of infant at family - education – job– numbers of work's hours, Place of infants during work**,** Infant's nutrition during work, Numbers of siblings, Month's income of family, and the marital status)

Part 2: Assessing mothers, knowledge), covered the following items

a. Knowledge regarding underweight. It was composed of 12 items such as definition of underweight, normal weight of infant at birth, normal weight of infant at 6 months, normal weight of infant at 12 months, follow up infant's weight continuously, period of follow up infant's weight, place of follow up, factors of underweight, signs of underweight, complication of underweight and prevention of underweight.

b. Knowledge regarding breast feeding. It was composed 10items such as definition of breast feeding, advantages of breastfeeding, numbers of breastfeeding daily, satisfaction, periods of breast feeding without any addition, causes of artificial feeding, artificial feeding order, and determining the required amount of artificial feeding.

c. Knowledge regarding weaning. It was composed 4 items. Such as definition, foods of infant during weaning, the principals of weaning, and causes of early weaning.

❖ **Scoring system of mothers 'knowledge was done as follow:**

Each correct answer was scored by one grade and each wrong or 'don't know "answer was scored by zero, a total scoring of knowledge divided into two categories

• 50% and above were considered satisfactory

• Less than 50% were considered unsatisfactory

The second tool: Check lists for assessing mothers' practices. It is composed of three items where check list were used to determine practices of mother about personal hygiene, breast feeding practices, and weaning.

❖ **Scoring system:**

The score of each item range from 0-2; zero for NO, One for sometimes, and Two for always where total scoring of practices divided into three categories.

The total practices (3 statements) were divided to poor, average, and good

• <50% was graded as incorrect practice (poor)

• 50% to <70% was graded as moderate practice (average).

• ≥ 70% was graded as high practice (good).

The third Tool: Physical assessment of underweight infants.

It is composed of four items was used to determine underweight by taking weight,

height, head circumference, and chest circumference.

Validity and reliability:

• To achieve the criteria of trust worthiness of the data collection tools in this study, tools were tested and evaluated for content validity by three experts in community health nursing. They were from different academic categories, i.e, professor and assistant professor from faculty of nursing in Ain shams university to ascertain relevance, clarity, applicability, and completeness of the tools. Based on experts comments were recommendations, minor modifications were made such rephrasing and rearrangements of some sentences.

• The internal consistency measured to identify the extent to which the items of the tool measure the same concept and correlate with each other through means of their internal consistency by Cronbachs Alpha Coefficient test as the following for mothers' knowledge and practices to control underweight.

Tools	Numbers of items	Cronbach Alpha Coefficient
Mothers' knowledge	26	0.704
Mothers' practice	26	0.811

Operational Design:

The operational design includes preparatory phase, ethical consideration, pilot study and fieldwork phase.

• Preparatory phase:

It included reviewing of literature and different studies related to educational intervention for mothers having under weight's infants by using books, articles, periodicals, and internet, after reviewing of text, current, national, and international related literature in various aspects of the problem, the study tools were designed and translated into Arabic language

Pilot Study:

A pilot study was carried out on 5% (10) mothers having underweight infants to test the study tools for clarity, feasibility, applicability, and estimated the time required to fill out questionnaires. The necessary modifications were done through omission of unneeded or repeated questions and modifications were made prior to data collection according to the pilot study results. The sample of the mothers who participated in the pilot study was excluded from the main study sample.

• Field work:

Approvals were obtained from administrator of primary health at south Giza Script. The researcher attended maternal and child health centers three days per week by rotation (Sundays, Tuesdays & Thursdays) from 10.00 a.m to 12.00p.m. The study lasted over six months from the beginning of December 2018 to the end of May 2019.

After obtaining a permission, the researcher met director of MCH and head nurse and explained the aim, then the researcher interviewed each mother individually and briefly explained the nature and the purposes of the study, the mothers were interviewed to assess their socio-demographic data, their knowledge regarding underweight, breastfeeding and weaning and their practices regarding personal hygiene, breastfeeding and weaning.

Explanations and clarifications were provided according to mothers' questions. The mothers filled the written questionnaire in the presence of the researcher or it was filled by the research for illiterate mother, the researcher ensured that all information pertaining to the questionnaire sheet was complete. The average time needed to fill out the questionnaire sheet was 30 minutes. A number of interviewed mothers per week ranged from 3 – 4 mothers/day. It lasted 22weeks to be fulfilled

Ethical consideration:

Informed consent was taken from the mothers to participate in the study after the aim of the study and the component of tool were explained to the mothers before to start the interview in order to get their approval to

participate in the study. Anonymity and confidentiality were assured. Ethics, values culture and beliefs was respected, and m others were informed that they allowed to choose withdrawing from the study at any times.

Administrative Design:

Before starting the field work for conducting this study a formal letter was issued from Faculty of Nursing–Ain Shams University to authority of Primary health (Maternal and Child Centers) in south Giza script where the proposed study were conducted. After obtaining the approvals from the director of these setting for conducting the proposed study, the researcher was start to communicate with the study subjects and explain the aim of the study.

Statistical Design:

Data were revised, coded, analyzed, and tabulated using the number and percentage distribution and carried out in the computer using appropriate statistical methods.

The statistical analysis include:

Percentages (%) value, means (±), standard deviation (SD), Chi- square (x2), T paired and proportion probability (P- value) were used for quantitative continuous variation.

Significance of results;

- NOT significant (NS) P> 0.05
- Significance (S) P ≤ 0. 05
- Highly significant(HS) P < 0.01

Study limitation; there is no limitation

Results:

Table (1): This table shows that 26% and 27% of underweight infants' age were about less than 6 months and less than 12 months, 64.0% were females and 33.5% were ranked as the fourth number at their family.

Table (2): This table shows that 51.5% of underweight infants' mothers were illiterate, 62.5% were work and 95.2% worked about 6 hours daily, while 84.8%

leaved their underweight infants at their home, and 52.0% complementary foods were infants' nutrition during their work, 64.5% of underweight infants had from 3 or 4siblings, 69.0% of month's family income was about 1200 and 98.5% of underweight infants' mothers were married.

Table (3): This table illustrates that there is unsatisfied knowledge of mothers about underweight, breastfeeding, weaning where meam=32.62,SD=7.57 &T=18.59 with highly statistically significance where p<0.001.

Table (4): This table shows that, there is poor mother's practices about personal hygiene, breast feeding and weaning where mean was 26.28, SD 8.20 & T= 19.53 with a highly significant statistical difference in sub total scale and total scale at p= 0.0000.

Table (5): This table illustrates that there are highly significant statistically positive correlation between total knowledge and total practices at r= 0.51 and 0.94 at p = 0.0000 respectively

**Table (6)*:* This table shows that there are statistically insignificant differences related to age, gender, Infant's number at family, infant's nutrition during work and total knowledge (P>0.05), while there are significant relation between job, numbers of siblings and total knowledge (P<0.05), and finally there are highly significant between mothers 'educational level, family monthly income and total knowledge (P<0.001).

Table (7): This table shows that there are statistically insignificant differences related to age, gender, infant's number at family, infant's nutrition during work and total practices (P>0.05), while there are significant relation between job, numbers of siblings and total practices (P<0.05),and finally there are highly significant between mothers 'educational

level, family monthly income and total practices (P<0.001).

Table (1): Distribution of underweight infants according to their Socio demographic characteristics (N=200)

Items	N	%
Age		
0<4 months	22	11
4<6 months	52	**26**
6<8 months	42	21
8<10 months	30	15
10<12 months	54	**27**
Gender		
Male	72	36.0
Female	128	**64.0**
Rank of infant at family		
The first	4	2.0
The second	9	4.5
The third	24	12
The fourth	67	**33.5**
The fifth	60	30.5
The sixth	34	17.0
The seventh	2	1.00

Table (2): Distribution of mothers according to their Socio demographic characteristics (N=200).

Items	N	%
Level of education.		
High education	45	22.5
Read and write	52	26.0
Illiterate	103	**51.5**
Job.		
Work	125	**62.5**
Not work	75	37.5
Numbers of work's hour.		
6 hour	119	**95.2**
12 hour	6	4.8
Place of infant during work		
Nursery	19	15.2
Home	106	**84.8**
Infant's nutrition during work.		
Complementary foods	65	**52.0**
Artificial feeding	60	48.0
Numbers of siblings.		
-2	36	18
-4	129	**64.5**
>6	35	17.5
Month's income of family.		
-1200	138	**69.0**
-1400	45	22.5
>1600	17	8.5
Marital status.		
Married	197	**98.5**
Divorce	2	1.0
Single mother	1	0.5

Table (3): Total mother's knowledge Scale.

	Mean	SD	T	P value	Sig
Total knowledge	32.62	7.57	18.59	0.00000	**P < 0.001 HS**

Table (4): Total mother's practices scale.

Practices	Mean	SD	T	P value	Sig
Mothers about personal hygiene	34.25	15.75	15.38	0.00000	**P < 0.001 HS**
Mothers about breast feeding	18.94	10.22	20.21	0.00000	**P < 0.001 HS**
Mothers about weaning	24.83	7.59	20.47	0.00000	**P < 0.001 HS**
Total mother's practices scale	26.28	8.20	19.53	0.00000	**P < 0.001 HS**

Table (5): Correlation between total knowledge and total practices.

Variables	R	P value	Sig
Total knowledge and total practices	0.51	0.00000	HS

Table (6)*:* Relation between total knowledge, and socio demographic characteristics among mothers' infants.

Correlation		N	Knowledge			ANOVA or T-test For T	P value	Sig
			Mean	±	SD			
Age				±			0.66907	NS
Gender	Male	72	61.96	±	21.92	-0.24	0.81405	
	Female	128	62.71		21.16			NS
Job	Not working	75	57.60	±	22.49	-2.51	0.01288	S
	Working	125	65.34		20.23			
Infant's number at family				±			0.19781	NS
Mothers' educational level	Illiterate	103	29.23	±	5.34			
	Read &Write	52	32.07		6.64			
	Higher Education	45	40.99		6.56	60.78	0.00000	HS
Infant's nutrition during work	Complementary feeding	65	66.27		18.67	0.53	0.59387	
	Artificial feeding	60	64.33		21.92			NS
Numbers of siblings	2	36	30.73	±	5.29			
	4	129	33.49		8.38	2.51	0.08386	
	6	35	31.34		5.80			S
Family monthly income	1200	138	31.56	±	7.62			HS
	1400	45	33.16		6.51	9.75	0.00009	
	1600	17	39.73		5.87			HS

Table (7): Relation between total practices and socio demographic characteristics among mothers' infants.

Correlation		N	Practices			ANOVA or T-test For T	P value	Sig
			Mean	±	SD			
Age				±			0.09311	NS
Gender	Male	72	70.75	±	31.72	-0.19	0.84812	
	Female	128	71.64		31.57			NS
Job	Not working	75	64.63	±	32.73	-2.35	0.01980	
	Working	125	75.33		30.24			S
Infant's number at family				±			0.10025	NS
Mothers' educational level	Illiterate	103	53.55	±	22.55			
	Read &Write	52	66.98		17.52	26.82	0.00000	HS
	Higher Education	45	77.54		9.54			
Infant's nutrition during work	Complementary feeding	65	75.14	±	29.68	-0.07	0.94215	
	Artificial feeding	60	75.54		31.09			NS
Numbers of siblings	2	36	56.33	±	20.89			
	4	129	63.29		22.25	1.97	0.14229	S
	6	35	65.58		17.63			
Family monthly income	1200	138	59.58	±	21.43			
	1400	45	65.64		22.46	6.07	0.00276	HS
	1600	17	77.18		6.24			

Discussion

The adequate knowledge, attitude, and practice of application of nutritional requirement must be the basis of infant feeding. The health and nutritional status of an infant and subsequent growth and development through child hood depend upon successful feeding practices, the socioeconomic status, education of mother, and family members have been known to influence infant's feeding behavior, nutritional counseling is the important responsibility of the nurse to promote the nutritional status of the infants and to prevent nutritional deficiency diseases**,(Datta,2018)**.The present study revealed that more than half of mothers' level of education was illiterate.This result is consistency with that study **(Nigatu et al., 2018)** which revealed that (54.7%) of the mothers were illiterate. In contrast with these results **(Encalada et al., 2019)** showed that 71.4% finished middle school. this results were inconsistence with **Ogunba, (2015)** which showed that 89.6% of mothers were worked outside the home and (61.5%) of mothers who were working outside the home were taking care at home with other care givers and higher proportion of mothers working in the offices/factories, introduced complementary foods between 3 - 6 months but offered more complementary feedings per day. more than two thirds of the study sample of underweight infants mothers had monthly family income from 1200 to 1400.This result was agreement with **Chowdhury et al., (2018)** which stated that one third of the study children belonged to households of the poorest wealth quintile (29.06%)(12) and in contrast with **Tosheno,etal, (2017)** Forty two percent of the respondents had less than 2000-birr average monthly income(13). There are factors related to mothers contributing more in occurrence of underweight between infants such as level of education, employment, and monthly income. This study illustrated that there is unsatisfied total knowledge with highly statistically significance where p<0.001(Table 2). This finding were in accordance with **Akinrinmade et al., (2019)** showed that There was unsatisfied in the knowledge scores of the caregivers with highly statistically significance where p<0.001 (14). This study demonstrates that, majority of the study sample were having subtotal and total poor practices regarding personal hygiene, breast feeding and with X^2= 148.4, 209.9, 209.2 and 212.9 at p=0.0000 for all (table3).this finding consistency with **Tosheno,etal, (2017)** which stated that Mean dietary diversity score for study participants was 5.05. About 132 (20.6%) of study participants had a poor dietary diversity (15). This study illustrates that there are highly significant statistically positive correlation between total knowledge and total practices at r= 0.51 and 0.94 at p = 0.0000 respectively (table4). This finding was in accordance with **Gaber et al., (2019)** revealed that there was statistically significance and correlation coefficient between knowledge and practices as r = 0.521 with P<0.0001(16), group (p = 0.0 5)(16). There are significant relation between job, numbers of siblings and total knowledge (P<0.05), and finally there are highly significant between mothers 'educational level, family monthly income and total knowledge (P<0.001(table5). This result was consistency with **Dereje et al., (2017)** which stated that educational status of mother, family size, and occupation of mothers were significantly associated with underweight. Educational status of mother had a significant association with the nutritional status of infants, i.e., infants who had uneducated mothers were 5.7 times more likely to be underweight than those mothers who had diploma and Family

size was significantly associated with nutritional status of infants i.e., children who had family size greater than or equal to seven were 4.9 times more likely to be underweight than those who had less than four family members. Similarly, occupation of mother was significantly associated with nutritional status of infants. Infants from households with employed mothers were 4.5 times more likely to be underweight than those whose mothers were unemployed.(17).There are significant relation between job, numbers of siblings and total practices (P<0.05), and finally there are highly significant between mothers 'educational level, family monthly income and total practices *(P<0.001).* This means that the elevation of job, numbers of siblings, mothers 'educational level, family monthly income result in elevation of total practices. This findings were inconsistent with *(Saeed et al., 2019)* this study shows that there was highly statistical significance association between moderate practice and university mother education (75%), not working mothers (75.2%), enough and more income (100%), and family size <5(80%).(18)

Conclusion

Based on finding of the present study, it can be concluded that there are unsatisfied level of mothers 'knowledge having underweight infants about underweight and so there are poor practices of them about underweight.

Recommendations:

Based on the result of the present study the following recommendations are suggested

1- Educational intervention to improve knowledge of mothers having underweight infants about underweight at rural area

2- Educational intervention to improve practices of mothers having underweight infants about underweight at rural area

3- Increase descriptive studies to assess factors of underweight at rural area

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