MedPharmRes

journal of University of Medicine and Pharmacy at Ho Chi Minh City
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Original article

Associated factors of ethnic mothers' knowledge, attitude, practice about diarrhea disease in children under 5-year old in Daklak province

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Received May 24, 2019: Revised August 21, 2019: Accepted September 01, 2019

Abstract: ***Background and Objectives:*** Diarrhea is one of the first causes of morbidity and mortality among children, especially in poor and developing countries including Vietnam. For decades, although Vietnam has implemented different health interventions to suppress diarrhea spread, this disease has been continuously concerned as a national health problem. Hence, the aim of this study was to assess ethnic minority mothers' knowledge, attitude and practice (KAP) associated with diarrhea in children under 5 years old; Then to find out the correlation among KAP, and discover some factors related to good knowledge, positive attitude, correct practice about diarrhea in under 5-year old children of the mothers at Pediatrics Department of Daklak General Hospital, 2014. ***Method:*** A community based cross-sectional study was carried out from September 2013 to July 2014 at Pediatrics Department - Daklak General Hospital with the participation of 153 ethnic mothers who has children with diarrhea. The mothers were interviewed directly following the questionnaire, whose structure was adapted from the World Health Organization (WHO) and author Hau Van Pham. The collected data were checked for completeness, consistency and then entered into Epidata 3.1 and analyzed using SPSS 20. ***Results:*** The data from 153 participants showed that the ethnic mothers had good knowledge accounted for 39.9%, whereas more than half of ethnic mothers (64.7%) had a positive attitude towards prevention of diarrhea among under-five children. However, the correct practice in taking care of children with diarrhea was not high (40.5%). As expected, there was statistically significant correlation between the mothers' knowledge and their attitudes ($p < 0.001$), as well as their practice toward diarrhea treatment ($p=0.005$). Analyzed data exhibited that knowledge of the mothers about diarrhea was influenced by their differences in socio-demographic factors, including educational level ($p<0.001$), occupation ($p=0.002$) and an ability to access information related to diarrhea in children under 5 ($p<0.001$). Similarly, the socio-demographic factor ($p=0.028$) and access to information about diarrhea ($p<0.001$) have an effect the correct practice in the prevention of diarrhea. There was a statistically significant correlation between the correct practice in preventing diarrhea and the socio-demographic factor, including the mothers' educational level ($p<0.001$) and the occupation ($p=0.021$).

Keywords: Diarrhea disease, ethnic mothers, knowledge, attitude, practice.

1. INTRODUCTION

According to the World Health Organization, diarrhea is one of the ten diseases leading morbidity and mortality in developing countries including Vietnam [1]. Globally, it is estimated that there are around 2.5 billion cases of diarrheal disease in which 1.5 million deaths annually recorded in children with the age of five [2]. In addition to high rates of morbidity and mortality, diarrhea is also an important factor

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DOI: 10.32895/UMP.MPR.3.2.4

leading to malnutrition, mental and physical retardation, facilitating the penetration of other infections, thus Diarrhea is always an economic burden for developing countries [3-4].

According to the National action plan for child survival of Vietnam Ministry of Health 2009-2015, diarrhea is considered as one of five primary causes of death in children [5]. In the 2009-2011 period, there were 2,536,957 cases of diarrhea, including 12 deaths [6]. Vietnam has recently made significant progress in controlling diarrheal disease, as a result fewer hospitalization and mortality. The country has reduced statistically the number of mortality among children under five years old. However, the leaders of public health organizations in Vietnam believe that this progress has remained slow and several key interventions have not attained the results as expected [1].

DakLak is one of the mountainous provinces with 44 groups of ethnic minorities, accounting for approximately 32% of the total population. The majority of ethnic mothers have no educational qualification and are uneducated about diarrhea, resulting in limitation of understanding the danger of diarrheal disease. This leads to a wrong attitude and incorrect practice in preventing and managing diarrheal spread among their community. Despite National Diarrhoeal Diseases Control Programme (CDD) that has been deployed many years in areas of this mountain province, the cases of diarrhea among children continuously increased from 2010 (9885 cases) to 2016 (16,821 cases) (Report of Prevention Health Center, 2016). Noticeably, the reports of diarrhea in under 5-year children has been quite common in the community, especially in ethnic minorities.

With the objective to identify associated factor affecting on knowledge, attitude and practice of ethnic mothers in prevention and management diarrheal disease among under-five children, we conducted a survey on 153 ethnic mothers, who has children with diarrhea to find out the key factors influencing on the good knowledge, positive attitude, and correct practice about diarrhea. The success of our research can contribute to enhance knowledge, attitudes and practices of diarrhea care in ethnic female community. Consequently, the mothers are aware of the danger of diarrhea and have the appropriate decision in taking care of the diarrhea-infectious children at home or in the hospital. Furthermore, in cases of the children with diarrhea are looked after by correct practice-attained mothers, they are better protected from other contamination originating from the hospital. Home-based management of diarrhea also reduces treated cost and avoid the overload situation, which can cause less effectiveness of treatment and management of diarrheal.

2. MATERIALS AND METHOD

2.1. Study Design

A cross-sectional study was conducted on 153 ethnic mothers of children treated for diarrhea in the Department of Pediatrics - DakLak General Hospital.

2.2. Ethics and Consent to participate

This study was approved by the Ethics Board in Biomedical Research at University of Medicine and Pharmacy at Ho Chi Minh City. The inclusion criteria were the ethnic minority mothers of under five-year children treated diarrhea at Department of Pediatrics - DakLak General Hospital from March to May 2014. The participants were informed of the purpose of the study and agreed to be interviewed following the questionnaire adapted from the World Health Organization (WHO) by Hau Van Pham [7].

2.3. Source and criteria of the research population

The ethnic mothers of diarrhea–treated under five-year children at Department of Pediatrics - DakLak General Hospital. The mothers were able to understand the content of each question during the interview with the langue assistance if necessary.

2.4. Confidence in the research tool

In order to assure the quality of the questionnaire, approximately 20% of the sample size was pretested to verify the suitability of the questionnaire before collecting data.

2.5. Operational definitions

2.5.1. Primary outcome

Correct practice is a target outcome of the study, which was related to several aspects below:

- Whether the mothers wash their hands before preparing the meals for the children or all family, as well as remind their children washing hands before the meals.
- Whether they wash their hand and help the children cleaning hand after using the toilets
- How the mothers breastfeed the infants and when they stop the feeding
- How they prepare the meals, drinking and breastfeeding for the children with diarrhea
- How they prepare ORS and frequency ORS utilization for children during diarrhea
- Whether the mothers additionally use the antibiotics for the children during diarrhea
- Whether the mother uses other medications to treat diarrhea for their children from wizards or others who are not qualified doctors.

The mothers have correct practice when they answer correctly 75% of the practice questions.

2.5.2. Secondary outcomes

Knowledge and attitude toward diarrhea of the mothers are defined as the understanding of diarrheal symptoms, the causes of diarrhea, negative effects and danger of diarrhea on children's health. Furthermore, the mothers' comprehension of the way supplementing foods, water, ORS usage, and good self-hygiene for measuring knowledge and attitude. The mothers with good knowledge and positive attitude once answering over 75% of the knowledge and attitude questions, respectively.

2.6. Data collection and analysis

Data collection progressing: Firstly, contacting to list ethnic minority mothers of children with diarrhea being treated at the Pediatrics Department. Then interviewing the selected mothers to collect the information following every single question in the questionnaires in order to avoid

confusion or omissions. Finally, Self-Research data collection to verify and ensure all the needed information is completed.

Data analysis processing: The collected information was encoded using data managing software Epidata3.1, then the data were analyzed by software SPSS 20. The good knowledge, positive attitude and correct practice were measured by the percentage of correct answers (≥75%). All the associated factors were described by the percentages of mothers with similar characteristics. All significant differences and correlation were statistically analyzed with $p<0.05$, *Chi-square* test.

3. RESULTS AND DISCUSSION

3.1. Ethnic mothers' knowledge, attitude and practice about diarrhea disease

Based on the data from 153 mothers, the figure 1 shows that 62 (39.9%) mothers had good knowledge about using Oresol, and 99 (64.7%) mothers had a positive attitude in the prevention of diarrhea in under 5-year children. Consistently, the previous study in 410 mothers in South Sudan also reported the low portion (38%) of the mother having good knowledge, but over haft of them (65.4%) had a positive attitude toward diarrheal prevention [8]. Another survey exhibited that although only 44.2% of 358 mothers had good knowledge, 80.7% of them had positive attitude [9]. In contrast, Heilemariam et al. provided evidence that among 295 mothers, two-third (65.2%) of them had good knowledge, but only 45.1% of the mothers had a positive attitude [10].

Alternatively, Chu Thi Giang Thanh et al. showed a higher percentage of mothers with either good knowledge or positive attitude, which were 64.24 % and over 80%, respectively [11]. The data suggest the majority of mothers understood the danger of diarrhea for under-five children, even though they do not have good knowledge about the management and prevention of diarrhea [8-9, 11-12]. The difference in the knowledge about diarrhea can be explained by the divergence of age, educational level, occupation, incomes and living condition.

Regarding to the correct practice in inhibiting diarrhea, our study showed that less than half (40.5%) of the mothers with correct practice (Fig. 1). The results in this study were similar to several previous studies, which exhibited the portion of caregivers had correct practice less than 50% [8, 12], indicating that incorrect practice can negatively affect without on diarrheal treatment leading to more severity of diarrheal disease in under 5-year children.

3.2. Effect of demographic and social factors on the mothers' knowledge, attitude and practice

In order to discover factors influence in knowledge, attitude and practice of the mothers, we analyzed the association of different demographic and social factors, including age, ethnicity, educational level, occupation, incomes and access to diarrheal information. The data in table 1 provided evidence that educational level and occupation were strongly associated with both good knowledge and correct practice of the mothers ($p<0.05$). There was only about 35% of mothers at under high school level, but over 55% of the mothers at high school level had both good knowledge and correct practice.

Similarly, over 85% of the mothers working in state organizations had good knowledge and correct practice in the prevention of diarrhea, whereas those in farming mothers were 60.4% and 36.2%, respectively. Furthermore, the good knowledge was dependent on the mothers' perception information of diarrheal management ($p<0.001$), which also affected on positive attitude of the mothers ($p<0.001$). Among 47 mothers who knew about diarrheal management, there were 65.9% and 96.6% of mothers knowing the information had good knowledge and positive attitude, respectively against 28% and 51% of mothers without getting the information of diarrhea. Meanwhile, a strong association between positive attitude and

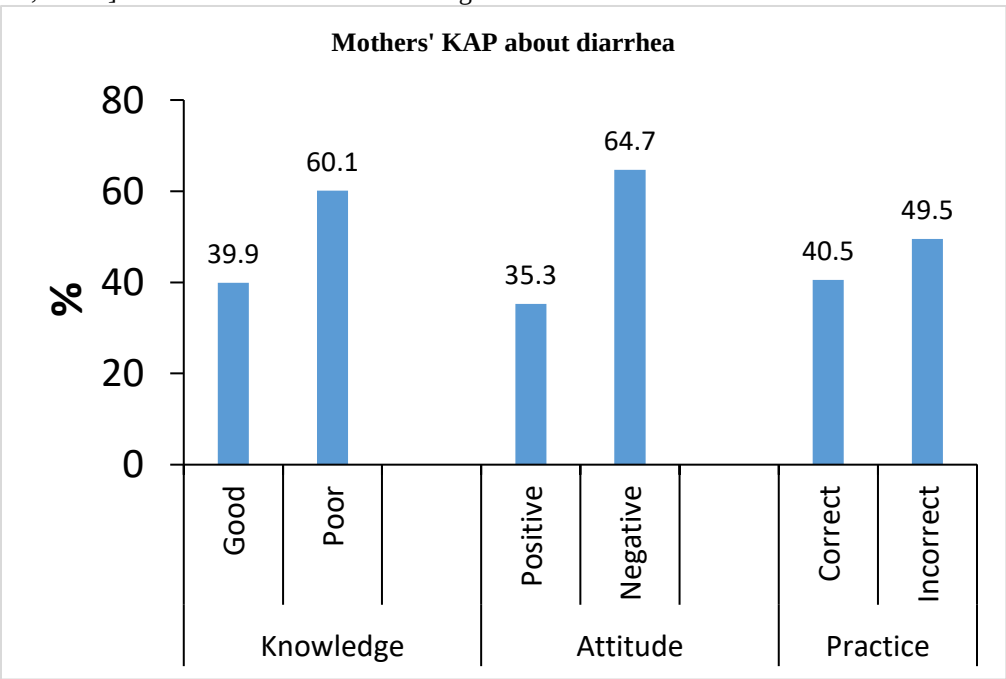

Figure 1. Ethnic mother's knowledge, attitude and practice of diarrhea disease

economic level (p=0.028). There was 69.1% of mothers with a good income while 48.4% of mothers with a low income had a positive attitude toward the prevention of diarrhea.

Our data suggest that the factors influencing knowledge, attitude and practice of the mothers are related to opportunities approaching the information about diarrhea. For example, the mothers, who have higher education level or work for public organizations, will be able to more easily to access to various information through social media, working communities or other social relationships. Consequently, these mothers might have good knowledge and experience in the treatment and management of diarrheal disease. The similar results were reported by Desta et al. in Northwest Ethiopia [14]. The same study showed that caregivers at secondary above level, and having information of diarrhea had adequate knowledge accounted for 91.6% and 62.5%, respectively while there were less than 57.1% and 12.6% of mothers at lower education level and having no the information [14]. Likewise, some studies in Vietnam also found a significant association between good knowledge and education level or occupation [9, 12]. The survey in Binh Thuan province exhibited that the mothers at level of high school and above possess good knowledge over 4-fold compared to the mothers at under high school level [12]. Another work showed the effect of occupation on knowledge of diarrhea, the good knowledge of mothers working in state agencies was 3.62 times higher than farming mothers [15]. The study in Ca Mau also provided similar results [9]

Table 1. Associated factors affecting ethnic mothers' knowledge, attitude and practice toward diarrhea

Information about mother		**Knowledge**			**Attitude**			**Practice**		
		Poor (92)	Good (61)	**P**	Negative (54)	Positive (99)	**P**	Incorrect (91)	Correct (62)	**P**
Age group	Under 22	3	8	0.279	11	10	0.308	13	8	0.318
	From 22 to 35	71	53		39	85		70	54	
	Over 35	8	0		4	4		8	0	
Ethnic group	Dao	1	0	0.323	1	0	0.063	1	0	0.11
	Êđê	79	56		44	91		78	57	
	H'Mông	1	0		1	0		0	1	
	M'Nông	3	1		2	2		3	1	
	Nùng	7	3		5	5		7	3	
	Tày	1	1		1	1		2	0	
Education level	No school	18	3	**< 0.001**	10	11	0.077	16	5	**<0.001**
	Primary – secondary school	54	26		30	50		52	28	
	High secondary school or higher	20	32		14	38		23	29	
Occupation	Housewife	5	7	**0.002**	2	10	0.462	5	7	**0.021**
	Farming	85	39		50	74		79	45	
	Business	0	1		0	1		0	1	
	State employees	1	12		2	11		6	7	
	Worker	1	2		0	3		1	2	
Economic level	Poor	23	10	0.208	17	16	**0.028**	23	10	0.208
	Not poor	69	51		37	83		68	52	
Access to information of diarrheal management	No	76	30	**< 0.001**	51	55	**<0.001**	65	41	0.489
	Yes	16	31		3	44		26	21	

Table 2. The relationship between good knowledge, positive attitude and correct practice

	Practice		OR (95% CI)	p-value*
	Good N(%)	Poor N(%)		
Knowledge				
Good	45 (72.6)	16 (17.6)	12.4 (5.71-26.97)	0.005
Poor	17 (27.4)	75 (82.4)		
Attitude				
Positive	42 (67.7)	57 (62.6)	1.25 (0.63-2.48)	0.52
Negative	20 (32.3)	34 (37.4)		

OR: Odds ratio; 95%CI: 95% confidence interval; **Chi-square test*

In this study, we found that perception of diarrheal information influenced on the positive attitude of the mothers (table 1). It can be explained that the mothers often listen to the information of diarrheal disease will be aware of the extremely dangerous effects of diarrhea on their children's health, resulting in a positive attitude of treatment and prevention of this disease. In our knowledge, here is the first time, a strong association of positive attitude and perception information of diarrhea was reported. Data of the attitude in this study did not show an involvement of education level and occupation in mothers' positive attitudes. In the contrary, Nguyen Thi Hien et al. exhibited the effect of education level on the attitude (p=0.02) [9], as observed in the work of Tran Thi Thuy Hang and Ly Van Xuan [16].

Besides that, our data provided that higher incomes of the mothers significantly contribute to the positive attitude. This can be due to the mothers having a good income will have more chances to approach information related to diarrhea via divers social media resources, such as TV, radio, internet etc. Hence, they understand the crucial importance of protecting their children from diarrhea and other diseases.

The correct practice is one of the most important keys for preventing and controlling efficiently the diarrheal disease. This study showed the strong effects of education level and occupation on mothers' correct practices. It is quite clear that the mothers with high education level or social position had statistically more knowledge in comparison with lower ones. Furthermore, good knowledge and correct practice of the mothers was proved to have a strong association (p=0.005). This demonstrated that the level of education and occupation involved in a correct practice because they influence on knowledge of the mothers. In consistence with our data, it was reported that education level played an important role in conferring the mother's good knowledge and correct practices [12, 14]. However, in the same studies, the authors did not show an association between occupation with correct practices.

3.3. Relationship between good knowledge, positive attitude and correct practice

Our data showed a strong association between good knowledge and a positive attitude about diarrhea of the ethnic mothers (p<0.001; data not shown). The mothers having adequate knowledge about diarrhea can positively change their attitude, it can be due to these mothers understand that diarrheal disease is extremely dangerous, even kills their children. Hence, they have the right attitude in preventing and managing expand of this disease.

Consistently, the previous study provided evidence of a statistical relation between good knowledge and positive attitude [9, 12-13]. These studies showed a higher rate of mothers having a positive attitude if they also had good knowledge. The data of table 2 provided evidence that the statistical relationship between mothers with good knowledge and correct practice (p = 0.005). The low portion of mothers having correct practice but poor knowledge (17.6%). Previously, Le Thi Thanh Xuan et al. illustrated well educated mothers who use the correct prevention practices were over 4-time higher than the mothers with poor knowledge [12], indicating that good knowledge about diarrheal inhibition plays a crucial role in the correct practice of the mothers. Thus, it is necessary to have diverse programs to diffuse and improve the diarrheal knowledge among the mother community, especially the ethnic groups in remote regions. In contrast, this study showed no correlation between positive attitude and correct practice (p=0.52). This may suggest that although mothers have the positive attitude, good knowledge is also required for them to have proper practice in preventing and managing the diarrheal disease.

4. CONCLUSION

The finding of this study showed that the attitude and practice of ethnic mothers were unsatisfactory about the prevention of diarrheal diseases in under-five children. The data demonstrated the predominant role of good knowledge in conferring the mothers the positive attitude as well as the correct practices. The positive attitude is necessary but not sufficient for the correct practice of the mothers. In addition, the socio-demographic factor (education level and occupation), and access to information about diarrhea strongly emerge as the key components for the good knowledge and the correct practice of the ethnic mothers in preventing diarrhea disease in children under 5 years old. Therefore, Health education, dissemination of information, and community conversation should be planned and extensively implement to improve the knowledge, which brings the mothers a positive attitude and correct practice, resulting in more efficient prevention and management of diarrheal diseases in under 5-year children. Among the ethnic mothers participating in this study, the mothers with lower level of education or social positions need to be more concerned by the authority in teaching and training the knowledge and practice to prevent and manage diarrheal disease.

ACKNOWLEDGEMENTS

In order to complete this paper, we would like to express appreciation to the colleagues at Tay Nguyen University, the leader of the Hospital and Pediatrics Units – Dak Lak General

Hospital for the aids during the time we performed interviews and collected the data.

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