Primiparas' knowledge on infant health and its relationship with demographic features in Konya (Turkey)

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Abstract

Aim: This study was performed to determine the primiparas knowledge level on issues related infant health and its relationship with their demographic features.

Methods: This descriptive and cross-sectional study was applied to 322 primiparas who were delivered at Dr.Faruk Sükan Maternity and Child Hospital in Konya city, in Turkey. Data were collected by using a questionnaire which concerns the demographic features, antenatal care and thirty issues related infant health for measurement of mothers; knowledge level.

Results: Of the primiparas, 22% was $\leq$ 19 years old, and educational level was primary school in 72% of the mothers. Mothers; knowledge scores were 44.6±12.4 in hundred points in all subjects. There was significant relationship between primipara mothers' educational level, her husband's educational level, number of the antenatal monitoring and total knowledge point related with infant health and knowledge scores on infant feeding and infectious diseases. *Conclusion:* Nominee mothers' educational level must be improved and the frequency of the antenatal monitoring must be increased because primiparas knowledge level on infant health is inadequate in Turkish population.

Keywords: Primipara; infant health; knowledge; breastfeeding

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Primiparların bebek sağlığı hakkındaki bilgi düzeyleri ve demografik özelliklerle ilişkisi (Konya, Türkiye)

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Özet

Amaç: Bu çalışma, primipar annelerin bebek sağlığı ile ilgili konularda bilgi düzeylerini ve onların demografik özellikleri ile ilişkisini tanımlamak için yapıldı.

Yöntem: Bu tanımlayıcı ve kesitsel çalışma, Konya il merkezinde Dr.Faruk Sükan Doğum ve Çocuk Hastanesinde doğum yapan 322 primi par anneye uygulandı. Veriler demografik özellikler, antenatal bakim ve annelerin bilgi düzeylerini ölçmek için bebek sağlığına ilişkin 30 konu ile ilgili bir soru formu kullanılarak toplandı.

Bulgular: Primipar annelerin %22'si 19 yaş ve altında ve %72'sinin eğitim düzeyi ilkokuldu. Annelerin bilgi puanı bütün konularda yüz puan üzerinden 44.6±12.4'dü. Primipar annelerin eğitim düzeyleri, eşlerin eğitim düzeyi, doğum öncesi izlem sayıları ile bebek beslenmesi bilgi puanı, enfeksiyon hastalıkları bilgi puanı ve bebek sağlığına ilişkin toplam bilgi puanı arasında önemli ilişki vardı.

Sonuç ve öneriler: Türk toplumunda, primipar annelerin bebek sağlığı hakkında bilgi düzeylerinin yetersizliğinden dolayı anne adaylarının genel öğrenim düzeyleri yükseltilmeli ve doğum öncesi izlem sıklığı artırılmalıdır.

Anahtar Kelimeler: Primipar, bebek sağlığı, bilgi düzeyi, emzirme

Introduction

Although it has fallen greatly over the past decades, from 145 deaths per 1 000 live births in 1970, infant mortality rate in Turkey is the highest among OECD countries, at 29 deaths per 1 000 live births in 2003 compared with the OECD average of 6.1 (OECD, 2005).

An important reason of infant mortality is ignorance. Knowledge level on infant care of people taking care of children is very important for healthy development of children (UNICEF, 1998). In the early years of life, mother is the most important person who looks after and meets physiological and psychological needs of him. So mother has to have correct knowledge and act proper to raise healthy children (Salam, 1995). Besides, it is known that some infants are growing unhealthy because of mother's lack of knowledge or wrong and traditional applications (Riva et al., 1999; Kabakuş et al., 2000; Atiyeh & El-Mohandes, 2005).

Mother's lack of knowledge about infant care in Turkey is severe (The Hacettepe Institute of Population Studies, 2003). The previous studies (Kızılkaya, 1996; Chen & Millar, 1999; Kabakuş et al, 2000; Tarkka et al., 2002; Mujkic & Vuletic, 2004) show that, mothers in postpartum period need information related infant care, childhood diseases, immunizations and infant feeding. In addition, younger mothers need extra care and attention (Secco et al., 2002; Qunlivan et al., 2003).

Mother's education level is an important factor affecting infant health. Researches (Chen & Millar, 1999; Kabakuş et al., 2000; Lande et al., 2003; The Hacettepe Institute of Population Studies, 2003) show that while increase in mother's education level improves the quality of infant care, decrease in education level increases the possibility of deficiency in growth, feeding problems, epidemic diseases, permanent injuries even mortality in infants.

Determining mothers' lack or level of knowledge is necessary for planning the process of educating mothers to improve infant health (Lande et al., 2004; Millar & Maclean 2005). Primiparas are first group to study because of their experience are less and they have a great need for professional guidance and support than other multiparaus mothers (Salam, 1995; Tarkka et al., 2002).

This study was undertaken to determine the primiparas' knowledge level on infant health and its relationship with their demographic features.

Materials and Methods

Sample

This descriptive study was performed at Dr.Faruk Sükan Maternity and Child Hospital in Konya city center. Sample group consisted of primipara mothers who had given birth in The Hospital. After the permission of hospital administration, 322 mothers formed the study sample by getting oral approval in the data collecting period. Thirteen mothers who did not approve the participation have been removed from study. In this sample size (n=322), research hypothesis' power (1-β) was accepted as 0.95 while mothers' knowledge need on infant health is considered 50% (The Hacettepe Institute of Population Studies, 2003), confidence level is 0.95 and with an expectance of 0.10 deviation.

Research Design

Researchers developed a questionnaire consisting of two sections to collect data. There were 10 questions about mother's demographic features and 3 questions about antenatal care in the first section while second section has questions to determine knowledge level on infant health. In this section there were 30 questions which include; 7 about breastfeeding, 5 about infant feeding, 12 about infant care, and 6 about infectious disease knowledge. Questions designed open ended, not multiple choice, to reflect mother's knowledge exactly. Questionnaire lastly shaped by applying primitive form to 15 primipara mothers who were in same hospital but weren't included to study. Data were collected by co-researchers by applying questionnaire to mothers within 48 hours after delivery by interviewing face to face. Answers were recorded clearly. After carrying out of questionnaire an opportunity education was performed about mothers' incomplete and wrong answers.

Independent variables of study are; age of mother, educational level, working status, social security of family, income level, existence of another older female member in their family, existence and frequency of antenatal monitoring. Presence of another older female member in same home with primipara mother is important because she is affective on younger woman about knowledge and attitude related gestation, labor and infant care. Being followed at least once after first gestational diagnose has been defined as basic criterion for monitoring. Dependent variable is knowledge point.

Statistical Analysis

Acceptability or adequacy level of answers were determined with respect to Ministry of Health of Turkey documents prepared to be used in mother education (brochure, film slide,

video…) and protocols used in community based informative practice by nurses. According to this method, wrong or blank (a few) questions are signed as "doesn't know", true but incomplete answers signed as "partly knows" and true answers signed as "knows". For example, according to answers to "which vaccines are applied to infants free in Turkey?"; people knowing 6 in 7 vaccines accepted as "knows", knowing 3 to 5 "partly knows", 2 or less "doesn't know". All answers are given a point compared to degree of correctness; "doesn't know" = 0, "partly knows" = 1, "knows" = 2. To facilitate perception and commentary total and area points are changed to 100-type. An overall point was calculated as unweighted average of all areas/dimensions.

Demographic data are expressed as percentage and knowledge level is expressed by using the mean±standard deviation of points. Mann-Whitney U test, Kruskall-Wallis and Bonferroni adjusted Mann-Whitney U test were used to compare knowledge level in respect of demographic and prenatal care features. Affect of independent variables on knowledge point is evaluated with multiple linear regression analysis. p values under 0.05 are considered significant.

Results

The mean age of 322 primipara mothers in the study population was 22.1±3.5 and 22% were under 20 years. Three of four of them only graduated from primary school. Of the mothers, 93% was housewives and two thirds of them have not social security (Table 1).

Primipara mothers' average point about infant health was found as 44.6±12.4 according to 100 points totally. They had 45.6±18.7 on infant feeding, 69.3±16.4 on breastfeeding, 38.9±16.9 on infectious disease and 32.5±15.9 on infant care.

There was no statistical significant difference in knowledge scores related with infant health according to mothers'age (Table 2). When knowledge points were evaluated with respect to education level, generally mothers having secondary school education or above had more points than mothers have only primary school or less, both total point and subtopics, except breastfeeding (p<0.05 for each parameter) (Table 2).

Primipara mothers who have older female member in same home got more points in total, infant care and feeding topics (p<0.05) (Table 2).

Working mothers had higher points than housewives in both overall point (56.7±14.5 versus 43.7±11.7) and feeding, breastfeeding, infectious disease and infant care subjects (for

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each comparisons p<0.05). Relation between income level and knowledge points was evaluated. Also, mothers' knowledge level who had more economical status was higher than the other in some topics (for each topic p<0.05). There was no relationship between income level and knowledge level on infant health (p>0.05). Mothers' knowledge points with respect to social security status were studied. Points of mothers with a social security were 45.0±11.6 and mothers with no assurance had 44.4±12.6 (p>0.05) (Table 2).

Table 1: Demographic features and antenatal monitoring status of primiparas are included in the study (n=322)

Variables		n	%
Age group (mean=22,1±3,5)	19 years and lower (adolescent mother)	71	22.0
	20-24 years old	186	57.8
	25 years and over	65	20.2
Educational level	Illiterate	12	3.7
	Primary school	232	72.1
	Secondary and high school	58	18.0
	College	20	6.2
Working status	House-wife	300	93.2
	Officer/worker	22	6.8
Social security	Presence	226	71.1
	Absence	93	28.9
Income	Less from minimum wage	112	34.7
	1 to 3-time of minimum wage	148	46.0
	Over than 3-time of minimum wage	62	19.3
Older female in same home	Presence	209	64.9
	Absence	113	35.1
Prenatal care	No-monitored by professionals	34	10.6
	Monitored by nurse or midwifery	75	23.3
	Monitored by physician	213	66.1
Frequency of prenatal examination	No examination/visit	34	10.6
	1 to 2 time	108	33.5
	3 to 4-time	103	32.0
	Over 5-time	77	23.9
Total		**322**	**100.0**

Knowledge scores of primiparas were higher in mothers who had antenatal care in gestational period by professional health staff (nurse, midwife or physician) especially doctor than the mothers not received antenatal care professionally (p<0.05). Knowledge points of primipara mothers were compared with respect to monitoring number during pregnancy. Points of mothers followed was higher than the other (p<0.05). Total knowledge point was increasing parallel to number of monitoring (Table 3). There was no statistical significant differences between points of mothers with and without pregnancy monitoring cards

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(44.9±13.0, 44.3±11.4 respectively; p>0.05).

Table 2: Knowledge scores of primiparas on infant health according to demographic variables (in 100 points, mean±standart deviation)

Variables	n	Overall point	Infant feeding	Breast feeding	Infectious diseases	Infant care
Age group:						
19 and lower	71	42.3±11.8	42.7±18.1	67.6±14.7	35.3±15.3	30.8±16.8
20-24 years old	186	45.3±11.3	47.2±17.8	70.5±16.7	38.9±15.5	32.6±15.1
25 years and over	65	45.2±15.5	44.2±21.4	67.4±17.4	42. 4±21.2	34.0±17.2
Educational level:						
Illiterate	12	37.1±15.9	30.0±22.5	64.2±18.0	26.3±14.5	25.9±14.9
Primary school	232	42.9±11.7	43.5±17.9	68.2±16.5	37.8±15.8	30.5±15.6
Secondary/high school	58	49.6±11.7[ab]	53.1±17.2[ab]	72.2±16.7	41.3±17.7[a]	39.0±14.5[ab]
College	20	53.5±11.9[ab]	57.0±17.5[ab]	75.7±11.2	50.8±20.2[ab]	40.6±16.2[b]
Husband's educational level:						
Primary school	181	41.6±11.7	41.2±18.1	67.0±17.1	35.8±15.5	29.9±15.5
Secondary/high school	101	48.0±11.8[b]	49.9±17.8[b]	72.0±14.0	42.0±18.0[b]	35.4±15.5[b]
College	40	49.3±13.1[b]	54.2±18.2[b]	72.1±17.5	44.3±16.8[b]	36.5±16.7[b]
Working status:						
House-wife	300	43.7±11.7	44.7±18.3	68.5±16.4	37.8±15.8	31.5±15.3
Officer/worker	22	56.7±14.5[***]	57.2±20.0[**]	78.5±13.0[**]	52.2±23.7[**]	46.0±17.2[***]
Social security:						
Presence	226	45.0±11.6	46.5±16.9	70.1±17.6	38.9±15.5	32.9±16.6
Absence	93	44.4±12.6	45.2±19.4	68.9±15.9	38.8±17.4	32.3±15.6
Family income (according to minimum wage):						
Less from	112	42.5±11.6	42.9±17.9	67.6±17.3	38.2±15.8	29.8±14.6
1 to 3-time	148	44.7±12.0	45.8±17.7	70.0±15.9	37.1±16.5	32.8±16.3
Over than 3-time	62	48.1±13.8[c]	49.8±21.5	70.2±15.7	44.0±18.5[d]	36.6±16.3[c]
Older female in same home:						
Presence	209	46.9±13.5	50.2±18.4	70.2±17.2	40.3±18.3	35.2±17.3
Absence	113	43.3±11.5[*]	43.0±18.4[***]	68.6±16.0	38.0±16.0	31.0±14.9[*]
Overall	**322**	**44.6±12.4**	**45.6±18.7**	**69.3±16.4**	**38.9±16.9**	**32.5±15.9**

[a]Higher than illiterate (p <0.05, Kruskall-Wallis and Bonferroni adjusted Mann-Whitney U test)
[b]Higher than primary school (p <0.05, Kruskall-Wallis and Bonferroni adjusted Mann-Whitney U test)
[c]Higher than less from minimum wage (p <0.05, Kruskall-Wallis and Bonferroni adjusted Mann-Whitney U test)
[d]Higher than 1-3 time group (p <0.05, Kruskall-Wallis and Bonferroni adjusted Mann-Whitney U test)
[*] p <0.05, [**] p <0.01, [***] p <0.001 (by Mann-Whitney U test)

The affect of all independent factors on the knowledge point related infant health was evaluated by using multiple regression analysis. Working status was not included regression analysis because number of worker salaried was small (22 in 322) and there was significant positive correlation between working status and educational level (r=0.551, p=0.000). Enter method was used in regression analysis. Primipara mothers and their husbands' educational

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level, and following number in gestational period were effective on overall knowledge point related infant health in multiple regression analysis including all variables related to knowledge level (p<0.05) (Table 4).

Table 3: Knowledge scores of primiparas on infant health according to prenatal care (mean±standart deviation)

Variables	n	Overall point	Infant feeding	Breast feeding	Infectious diseases	Infant care
Prenatal care by professionals:						
No-monitored	34	38.1±11.5	35.2±17.7	65.9±20.8	31.8±13.5	26.2±14.3
By nurse or midwifery	75	44.8±12.5[a]	45.4±19.6[a]	69.7±16.8	38.8±16.8	32.5±15.9
By physician	213	45.5±12.2[a]	47.2±18.0[a]	69.6±15.5	39.9±17.1[a]	33.5±15.9[a]
Frequency of prenatal examination/visit:						
No-examined/visit	34	38.1±11.5	35.2±17.7	65.9±20.8	31.8±13.5	26.2±14.3
1 to 2 time	108	42.8±11.6	43.1±18.0	68.1±15.9	35.8±16.5	30.8±14.6
3 to 4-time	103	45.4±12.0[b]	46.6±17.9[b]	69.2±15.5	41.2±17.0[b]	33.1±16.2
Over 5-time	77	48.8±12.7[bc]	52.2±18.6[bc]	72.2±16.0	42.9±16.8[bc]	36.8±16.6[b]

[a]Higher than no-monitored group (p <0.05, Kruskall-Wallis and Bonferroni adjusted Mann-Whitney U test)
[b]Higher than no-examined group (p <0.05, Kruskall-Wallis and Bonferroni adjusted Mann-Whitney U test)
[c]Higher than 1 to 2-time examined group (p <0.05, Kruskall-Wallis and adjusted Mann-Whitney U test)

Also, subgroups of knowledge point and independent variables were taken to multiple linear regression analysis. Besides being as overall points, mother's and her husband's educational level, and following number in prenatal period were effective on knowledge point of infant feeding (p<0.05). Educational level and following number in prenatal period were effective on knowledge point of infectious diseases (p<0.05). Following number in gestational period was also effective on knowledge point of breast feeding (p<0.05). And mother's educational level was effective only on knowledge points on infant care (p<0.05) (Table 4).

Table 4: Variables affected on knowledge points related subfield of infant health in primipara mothers

Variables	Infant feeding β	Infant feeding p	Breast feeding β	Breast feeding p	Infectious diseases β	Infectious diseases p	Infant care β	Infant care p	Overall point β	Overall point p
(Constant)	3.62	0.000	8.89	0.000	1.36	0.124	3.69	0.032	17.57	0.000
Age	-0.03	0.217	-0.01	0.614	0.06	0.052	0.04	0.496	0.54	0.646
Educational level	0.47	**0.009**	0.35	0.137	0.40	**0.048**	0.77	**0.048**	2.01	**0.006**
Husband's educational level	0.38	**0.019**	0.28	0.187	0.29	0.103	0.33	0.332	1.29	**0.046**
Frequency of prenatal examination	0.12	**0.004**	0.11	**0.038**	0.13	**0.003**	0.14	0.106	0.52	**0.002**
Social security	-0.29	0.170	-0.26	0.355	-0.23	0.346	-0.37	0.420	-1.16	0.180
Family income	-0.05	0.706	-0.04	0.810	-0.04	0.808	0.32	0.306	0.18	0.756
Presence of older female in family	-0.38	0.082	0.04	0.871	0.23	0.351	-0.26	0.570	-0.37	0.668
Staff given prenatal care	0.13	0.385	-0.09	0.649	0.05	0.761	0.17	0.598	0.27	0.661

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Definition of a healthy baby was asked to primiparas. Ratio of mothers who correctly know the definition of "healthy baby" was 32.6%. Ratio of definition healthy infant correctly was related only educational level as positive.

Discussion

Representation of population level by study sample is limited by primipara mothers who had given birth during study period. Contrary to this restriction, study's power of determining lack or level of knowledge (power=0.95) was an advantage. The power is related to sample size (n=322) which is much higher for studies performed face to face interviewing. Also findings can be generalized to population because sample's average age and education level distribution for primipara women is harmonious to Turkish population (The Hacettepe Institute of Population Studies, 2003).

Primipara mothers' lack of knowledge level is 55% with respect to complete points according to questions in this study. Lack of knowledge level was assumed 50% with 10 points of deviation while planning. Total knowledge point was found as projected in method. Mothers' general knowledge level about infant health is about 45 according to overall 100 points. This insufficient level is an evidence of lack of knowledge. At least level of 67% is needed to be sufficient.

Knowledge level about breast-feeding is higher than other topics (Table 2). Because mothers are given education about breast feeding within the first hour after birth or faking up by the health staff in the hospital which is chosen as "baby-friendly hospital" by UNICEF. Positive effect of face to face education or briefing can not be denied, especially in short turn. It is showed that Baby-Friendly Hospital Initiative may contribute to positive effect breastfeeding (Wright et al., 1996; Smith et al., 2003). Also individual or group education about special topics is an important factor effecting knowledge and attitude independent from other demographic properties (Mujkic & Vuletic, 2004; Reeve et al., 2004). It was shown that breastfeeding was related to mother's age, education, household income, social class and nursing guidance (Riva et al., 1999; Li et al., 2004**;** John, 2005; Millar & Maclean, 2005).

Significant relations at different levels had been found between independent variables and total and subject knowledge points if taken separately, but discussion will be made according to results of multiple regression analysis. Regression analysis showed that

primipara's education level, husband's educational level and the numbers of antenatal monitoring were effective on total point of knowledge related with infant health (Table 4). It is accepted that education level has positive effect on measures about health attitude (Moran, et al., 1997; Lande et al., 2004). It is a predictable result that knowledge level on infant health and ratio of positive attitude increase parallel with an increase in the number of antenatal monitoring (Reeve et al., 2004). According to the recommended schedule, antenatal care visits should be done monthly until 28 weeks' gestation (7th month), then every two weeks until 36 weeks, and then every week until 40 weeks or delivery. Regular visits allow proper monitoring of the mother and child throughout pregnancy (The Hacettepe Institute of Population Studies, 2003). Education of pregnant by health-care staff is the most important purpose of visits. Various studies show the importance of antenatal care and monitoring (Munjanja et al., 1996; Coleman et al., 1999; Taguchil et al., 2003).

Independent variables effecting knowledge level on infant feeding are mother's education level, husband's educational level, and the number of antenatal observations parallel to total knowledge point (Table 4). A study (Lande et al., 2003) showed that timely introduction of solid foods rose with increasing maternal age and with increasing level of maternal education. Number of antenatal monitoring and education level are accepted to effect improvement of attitude and knowledge (Lande et al., 2004; John, 2005). Also, Barnes-Boyd et al (2001) show that home visits reduced infant mortality. Similarly it is showed that mothers observed by health-care staff had higher knowledge level on infant-feeding (Qunlivan et al., 2003). Having a college education was the maternal characteristic associated with the largest number of positive child feeding behaviors according to Hendricks et al (2006).

According to this study, it was found that knowledge level point on breast feeding was affected only by number of antenatal monitoring. There were no data supporting this finding in the literature. But mothers' education level is shown as effective on breast feeding in other studies (Smith et al., 2003). Although mothers in this study were educated after birth, antenatal monitoring showed that continuous briefing was more useful and permanent. Breastfeeding education during antenatal period is effective on starting and continuing breastfeeding after pregnancy (Valeria et al, 2004). A study (Taveras et al., 2004) showed that mother candidates' knowledge about breast milk in antenatal period was 63%.

Infectious disease knowledge point is affected by educational level and number of

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antenatal monitoring. In the study of Qunlivan et al. (2003), it was found that there was no significant difference between the mothers with and without receiving home visits about knowledge of infant vaccination schedules. A study (Impicciatore et al., 1998) reported that mother's low educational level and the absence of previous information on the management of fever were significantly associated with mothers' concern about fever children. Another study (Impicciatore et al., 2000) showed that mothers' attitudes, educational level, and socio-demographic characteristics, as well as socio-economic factors could influence children's immunization uptake. It was affirmed that improved health education is required to allay mothers fear and anxiety and promote a more appropriate fever management at home (Al-Nouri & Basheer, 2006).

Infant care knowledge point is affected by only mother's educational level. A study founded that mothers participating in the home visitation program gained in knowledge about child care (Hammond-Ratzlaff & Fulton, 2001). Another study (Sword & Watt, 2005) showed that women having low socioeconomic status had less point of knowledge on infant care.

In conclusion, number of antenatal observations and education level are the most important factors effecting primiparas' knowledge level on infant health. The results suggest that number of antenatal visits and care must be sufficient and general education level of people, especially women, should be raised to improve infant health.

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