

Original Article

Investigation Of Parents' Knowledge Levels of and Attitudes Towards Shaken Baby Syndrome

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Abstract

Background: Shaken Baby Syndrome is a condition leads to serious health consequences in the baby.

Objective: The study was conducted to investigate parents' knowledge levels and attitudes towards 'Shaken Baby Syndrome' having 0-12-month-old babies.

Methodology: This descriptive study was carried out to investigate parents' knowledge levels of and approaches towards 'SBS' who brought their 0-12-month-old babies to the pediatric clinic of a university hospital.

Results: In the study, when the parents were asked what they did first when their babies cried, 178 (35.4%) checked whether the baby needed anything, 49 (9.7%) diverted the baby's attention.

Conclusion: The participating parents didn't have enough knowledge about the syndrome.

Key Words: Shaken baby syndrome, family, knowledge, attitude.

Introduction

Crying is the only way for a baby to express itself at birth and in the first period of its life and to establish communication with the environment (Cansever et al., 2012; Baykan et al., 2016; Alagoz, 2013). Normal crying starts during the first weeks after birth and reaches up to a maximum of 2.5-3 hours a day on the 6-8th week (Yakut & Tunc, 2007).

Excessive crying is a very common sign of complaining in the first three months following birth (Baykan et al., 2016; Karabayir & Oguz, 2009; Zengin et al., 2016). In most babies, crying and restlessness spontaneously decrease and disappear in the 3rd and 4th months after birth (Yakut & Tunc, 2007).

Crying may be due to non-illness-related factors such as hunger, discomfort or irritation from a

wet or dirty diaper, feeling cold, over-dressing, uncomfortable clothes, or due to many medical reasons, especially infections (Cansever et al., 2012; Alagoz, 2013).

Excessive crying is often defined as crying for 3 or more hours over a 24-hour period. According to Wessel, crying is defined as excessive crying, which lasts for at least 3 hours a day and occurs three days a week for three consecutive weeks (Halpern & Coelho, 2016). In the first 4 months of life, 3-30% of infants are reported to cry excessively.

A number of techniques performed regularly and calmly have been shown to improve mother-baby interaction, baby's sleeping, crying, and stress hormones. Among methods used to soothe a crying baby are holding the baby in your arms, rocking, or playing music, which changes from

culture to culture (Cansever et al., 2012; Zengin et al., 2016). Babies' excessive crying worries their parents and therefore they frequently take them to emergency services and outpatient clinics (Yakut & Tunc, 2007). In the first 4 months of life, 3-30% of infants are reported to cry excessively (Cansever et al., 2012).

A baby's excessive crying can make the parents feel tired, sleepless and short-tempered in the post-natal period (Sahin & Tasar, 2012). The irrepressible crying of the baby worries the parent who cannot understand why the baby is crying and who does not know what to do. This is the main trigger of violence, and increases anger. Increased anger leads to loss of self-control. Such stress can suddenly increase due to inadequate social support.

Parents may show more physiological response, stronger negative emotional reactions and they may become more assailable (Crouch et al., 2015). If the parent cannot control this feeling and forcefully shakes the baby back and forth while holding him or her about the arms or torso, the baby may experience Shaken baby syndrome (SBS) (Cansever et al., 2012; Sahin & Tasar, 2012). It has been found that the frequency of SBS increases as the frequency of the baby's crying increases. Therefore, crying is considered as a trigger mechanism for the SBS (Sahin & Tasar, 2012).

To describe physical abuse that results in brain and skull injury in children, in addition to the terms such as 'battered child syndrome', 'shaken baby' or 'shaken baby syndrome', the terms such as 'abusive head trauma' and 'non-accidental head trauma' which define the mechanism are used (Sahin & Tasar, 2012). SBS, which can lead to severe brain trauma, is a type of child physical abuse that results from the baby's being shaken back and forth while holding him or her about the extremities or thorax and causes retinal hemorrhage, bone fractures, subdural and subarachnoid hemorrhage, and diffuse axonal injury especially in children under the age of six (Cansever et al., 2012; Karbeyaz et al., 2012). SBS was first described by the pediatric radiologist John Caffey (Karbeyaz et al., 2012).

This syndrome often occurs in children younger than 2 years (Yagmur et al., 2010; Koc et al., 2012). Non-accidental head trauma is most common in the first year of life and is the most common non-natural cause of death in infants (Sahin & Tasar, 2012). Most of the non-

accidental head trauma cases result in death or serious neurological damage (Koc et al., 2012).

Sequelae that develop after children are shaken are often irreversible, and may even result in death. Therefore, implementation of prevention programs and prevention of abuse before it is perpetrated are regarded as priority approaches. Because several definitions are used and because related data are not integrated into a single data pool, it is difficult to reliably detect the frequency of SBS. SBS is not a well-known issue in our country and there is no study on how to soothe a baby crying violently (Sahin & Tasar, 2012).

The present study was conducted to investigate parents' knowledge levels of and approaches towards 'SBS' whose 0-12 month-old infants are followed in the pediatric clinic of a university hospital.

Method

Design: This descriptive study was carried out to investigate parents' knowledge levels of and approaches towards 'SBS' who brought their 0-12-month-old babies to the pediatric clinic of a university hospital between February 2016 and August 2016.

Study Population: The study population included parents whose 0-12 month-old infants are followed in the pediatric clinic of a university hospital. Of these parents, 200 who brought their babies to the clinic at specified intervals and agreed to participate in the study comprised the study sample.

Instruments

Survey Form: The Form prepared by the researcher in accordance with the literature included 26 items questioning the participants' sociodemographic characteristics, knowledge levels and attitudes. The survey forms were filled out in seven months between February 2016 and August 2016 through face-to-face interviews held with the parents. It took approximately 5-7 minutes to fill out the survey form.

Data Analysis: The data obtained with the survey form were analyzed using the SPSS 16.0 for Windows (The Statistical Package for Social Sciences). For the analysis of the data, percentages (%) and the multiple response test including multiple choice questions were used.

Ethical Approval: Written permissions were obtained from the Chief Physician of the university hospital where the study was to be

conducted and from the ethics committee. Before filling out the survey forms to be used in the study, the parents were given verbal and written information about the study and then their consent was obtained.

Results

Demographics

Of the parents, 80.5% (n:161) were mothers. Their mean age was 29.02 ± 5.12 . The fathers' mean age was 33.6 ± 5.36 . Of them, 73.5%

(n:147) had nuclear families. As for their employment status, 35% (n:70) of the mothers and 94% (n: 188) of the fathers were employed. The rates of those who looked after the babies was as follows: mothers: 61.5% (n: 123), grandfathers and/or grandmothers: 24.5% (n:49), nanny 12.5% (n: 25) and others:1.5% (n: 3). Of the babies 53% (n:106) were boys. The babies mean age was 7.19 months \pm 3.8 days (Table I). The socio-demographic characteristics of the participating families are given in Table I.

Table I. Socio-Demographic Characteristics of the Participants

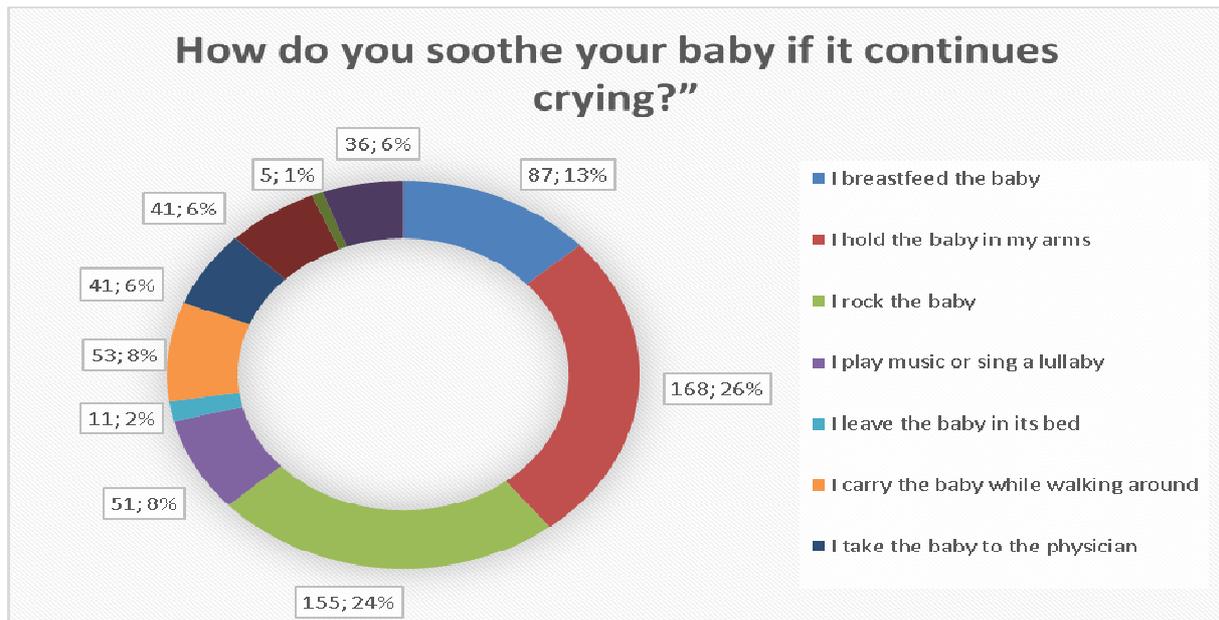
Socio-Demographic Characteristics	Number (n)	Percentage (%)
Family Member interviewed		
Mother	161	80.5
Father	39	19.5
Mothers' mean age (years) \pm SD*	29.02 \pm 5.123	
Fathers' mean age (years) \pm SD*	33.63 \pm 5.368	
Family type		
Nuclear family	147	73.5
Extended family	41	20.5
Fragmented family	12	6.0
Mothers' education levels		
Primary school	45	22.5
High school	89	44.5
University	64	32.0
Postgraduate	2	1.0
Fathers' education levels		
Primary school	17	8.5
High school	79	39.5
University	101	50.5
Postgraduate	3	1.5
Mothers' employment status		
Employed	70	35.0
Unemployed or on maternity leave	130	60.0
Fathers' employment status		
Employed	188	94.0
Unemployed or on leave	12	6.0
Caregiver of the baby		
Mother	123	61.5
Grandmother	49	24.5
Nanny	25	12.5
Others	3	1.5
Babies' mean age (months) \pm SD*	7.19 \pm 3.875	
Babies' genders		
Girl	94	47.0
Boy	106	53.0
Total	200	100.0

Table II. Distribution of Responses Given by the Participating Parents to Questions They Were Asked

What harm would excessive crying cause the baby?	Number (n)	Percentage (%)
High fever or a febrile seizure	74	37.0
Hoarse voice	67	33.5
Hernia	38	19.0
Psychological effects	21	10.5
What harm does shaking cause to the baby?	Number (n)	Percentage (%)
It does not kill the baby but can leave it disabled	67	33.5
It may kill the baby or leave it disabled	74	37.0
It may kill the baby	13	6.5
It does not cause a serious problem	46	23.0
Have you ever heard of the shaken baby syndrome?	Number (n)	Percentage (%)
Yes	17	8.5
No	183	91.5
If your answer is “yes”, what is the source of your knowledge?	Number (n)	Percentage (%)
Media (TV, internet)	8	4.0
Nurse or physician	7	3.5
Family or people around	1	0.5
I have no idea	1	0.5

Figure I: Distribution of Responses Given by the Participating Parents to the Question of “What do you do first when your baby cries?”

Figure II: Distribution of Responses Given by the Participating Parents to the Question of “How do you soothe your baby if it continues crying?”



Analysis of what parents did first when their babies cried showed that of them, 178 (35.4%) checked the baby whether it needed anything such as feeding, changing etc., 49 (9.7%) diverted the baby's attention to something else, 77 (15.3%) checked whether the baby had a health problem, 127 (25.2%) rocked the baby by holding it in their arms or placing on their legs, and 71 (14.1%) gave the baby a pacifier (Figure I). When the parents were asked how they soothed their babies if the babies continued crying, it was determined that 13.4% (n: 87) of the mothers nursed the baby, 25.9% (n: 168) held the baby in their arms, 23.9% (n:155) rocked the baby, 7.9% (n:51) played music or sang a lullaby, 1.7% (n:11) left the baby in bed, 8.2% (n:53) carried them while walking around, 6.3% (n:41) took the baby to the physician, 6.3% (n:41) massaged or bathe the baby, 0.8% (n:5) used herbal medicines and 5.6% (n:36) utilized white noise (running a hair dryer or vacuum cleaner) (Figure II). When the parents were asked what harm excessive crying would cause to the baby, they said that the baby would run a fever or have a febrile seizure [37% (n:74)], would have a hoarse voice [33.5% (n: 67)], would suffer hernia [19% (n:38)], or would be psychologically affected [10.5% (n:21)] (Table II). When the parents were asked what harm shaking causes to the baby, 33.5% (n:67) said “it does not kill the baby but can leave it disabled”, 37.0% (n:74) said “it may kill the baby or leave it disabled”, 6.5%

(n:13) said “it may kill the baby” and 22.0% said “it does not cause a serious problem”, and 1.0% chose the "others" option. (Table II). When the parents were asked whether they had ever heard of the SBS, 8.5% of them (n:17) said that they had heard of it. When they were asked about the source of the information related to the syndrome, their answers were as follows: the media like TV or internet [4% (n:8)], the family or people around them [0.5% (n:1)], or nurses or physicians [3.5% (n:7)]. Of them, 91.5% (n:183) had never heard of the syndrome (Table II).

Discussion

Among the factors affecting babies' health level, the income level of the society, the hygienic condition of the environment, the quality of the health services, mothers' age and education level have been reported to be important (Caliskan & Bayat, 2012). Variables such as low economic and education level of the family, fragmented family, physical and psychological illness history of the parents, unemployment, parents' sexual problems and high number of children have been reported as risk factors likely to play a role in childhood abuse (Demirli et al., 2013; Beyaztas et al., 2014). The analysis of the participants from this aspect demonstrated that the mean age of the mothers was 29.02 ± 5.12 , that the majority of them had a elementary family and that in most families, babies' caregivers were mothers. It is known that healthy babies normally cry up to 2-3 hours a day (Cansever et al., 2012).

In a study conducted on the issue, when mothers were asked to describe healthy babies, 16.3% of them said "non-crying babies are healthy babies" (Arabaci et al., 2016). The appropriate approach to the baby's crying is one of the most important issues in baby care (Yildiz, 2008). Mothers' wrong traditional beliefs, knowledge and practices or their lack of knowledge about infant care affect the baby's health adversely (Koc et al., 2012). In this regard, one of the subjects to be taught by a nurse who gives postpartum education and counseling should be "coping with the baby's crying".

This issue is of importance in ensuring and maintaining a positive parent-infant relationship (Yildiz, 2008). In the present study, when the baby cried, of the participants 35.4% checked whether the baby needed anything such as feeding, changing etc., 25.2% rocked the baby by holding it in their arms or placing on their legs, and 15.3% checked whether the baby had a health problem. In a study conducted with 702 mothers in the United Arab Emirates, to soothe their babies when they cried, of the mothers, 99.1% nursed them, 96.9% held the baby in their arms, 64.7% gave herbal tea and 42.2% rocked the baby (Abdulrazzaq et al., 2009). In another study, to soothe their babies in the first 16 weeks, of the mothers 87% held the baby in their arms, 82% nursed the baby, and 67% rocked the baby (Howard et al., 2006).

Since there is no proven medical treatment, many methods have been tried to soothe the baby. Methods used to soothe babies vary from country to country and even from culture to culture. Among these methods are playing soothing music, giving herbal medicines or teas, dimming the lights in the room, minimizing the environmental stimuli, providing the rhythmic movements, and holding the baby in your arms to make it feel warm. (Turner & Palamountain, 2011; Heird, 2004). In a study conducted in the Netherlands, to soothe their babies, the mothers held the baby in their arms, (95%), gave pacifiers (84%), massaged or bathed the baby (65%) and played music (57%). In the present study, of the mothers, 25.9% held the baby in their arms to soothe their babies, 23.9% rocked the baby, 13.4% nursed the baby and 8.2% walked around holding the baby in their arms. Other soothing methods used by the participants were playing music, singing lullabies, taking the baby to a doctor, giving a massage, bathing the baby, using white noise (vacuum cleaner or hair dryer, etc.) or using herbal remedies. They also reported that

prolonged crying may cause the baby to run fever or to have a febrile seizure (37%), to have a hoarse voice (33.5%), to suffer hernia (19%) or to be psychologically affected. In their study conducted in 2009, Abdulrazzag found that the rate of those using herbal tea was 75%. This result shows that cultural differences affect the soothing methods preferred by mothers. The cause of child abuse is multifactorial and in her paper, Ciftdemir reported that the risk factors associated with parents, children and the environment were influential. Ciftdemir also reported that perpetrators of physical abuse were mostly parents or caregivers, and 70% of severe head traumas were caused by fathers or step-fathers (Ciftdemir, 2015). In the present study, it was determined that 91.5% of the parents did not hear about SBS. In a study conducted in the United States, the rate was 50-75% among young adults and adolescents (Matschke et al., 2009). The "Shaken Baby Syndrome Prevention Program", carried out in many countries, particularly in the developed countries, aims to prevent the shaking of babies by providing education right after birth. Many protection programs are implemented throughout the countries by providing primary prevention education for all parents after delivery (Deyo et al., 2008). To determine the incidence of SBS and how educational programs on this issue should be held in our country, more studies should be conducted.

Conclusion

In this present study, parents' knowledge of SBS was determined to be inadequate. Given the fact that the education level of the participating parents was higher than the average of our country and that even their knowledge of SBS was inadequate, it is obvious that parents should be given trainings on the SBS, baby's crying and soothing of the crying baby.

The place where the work was carried out:

Ege University Faculty of Medicine Hospital-Pediatric Clinic

References

- Abdulrazzaq, Y.M., Al Kendi, A., & Nagelkerke, N. (2009). Soothing methods used to calm a baby in an Arab country. *Acta Paediatr*, 98:392-396.
- Alagoz, H. (2013). Infantil kolik: Etiyoloji ve tedavi secenekleri. *Cagdas Medic Journal*, 3(2):148-154.
- Altimier, L. (2008). Shaken baby syndrome. *J Perinat Neonat Nurs*, 22(1), 68-76.
- Arabaci, Z., Yildirim, J.G., Dundar, B.N., & Kadam, Z. (2016). Traditional methods used in infants. *Children and Civilization*, 1:61-86.

- Baykan, Z., Kondolot, M., & Baykan, A. (2016). Crying behavior in the first four months of life in healthy infants, families' approach to crying and shaking their babies. *Journal of Diseases of Children Turkey*, 1-7.
- Beyaztas, F.Y., Ozen, B., & Butun, C. (2014). Examination of physical child abuse. *International Refereed Journal*, 3:1315-1331.
- Cansever, Z., Tasar, M.A., Sahin, F., Camurdan, A.D., & Beyazova, U. (2012). Knowledge and attitudes of families about shaken baby syndrome. *Gazi Medical Journal*, 23:39-45.
- Crouch, J.L., Hiraoka, R., McCanne, T.R., Reo, G., Wagner, M.F., Krauss, A., Milner, J.S., & Skowronski, J.J. (2015). Heart rate and heart rate variability in parents at risk for child physical abuse. *Journal of Interpersonal Violence*, 1-24.
- Caliskan, Z., & Bayat, M. (2011). Infant care practices of mothers and affecting factors: An example of Cappadocia. *Anatolian Journal of Nursing and Health Sciences*, 14(2): 23-30.
- Ciftdemir, N.A., Simsek, O., Azizoglu, M., Eren, T., Gokalp, S., Vatansever, U., & Esgin, H. (2015). Abuse-related head trauma: A case report. *Journal of Child Health and Diseases*, 58:161-165.
- Demirli, C.N., Yilmaz, G., Oral, R., Karacan, C.D., & Zorlu, P. (2013). Abusive head trauma: Report of 3 cases. *Ulus Trauma Emerg Surg Jour*, 19:261-266.
- Deyo, G., Skybo, T., & Carroll, A. (2008). Secondary analysis of the "love me...never shake me" sbs education program. *Child Abuse Negl*, 32:1017-1025.
- Halpern, R., & Coelho R. (2016). Excessive crying in infants. *J Pediatr*, 92(3):40-45.
- Heird, W.C. (2004). The feeding of infants and children. In: R.M. Kliegman, R.E. Behrman, H.B. Jenson & B.F. Stanton (Eds.), *Nelson textbook of pediatrics* (18th edn., pp 222-223). WB Saunders Elsevier:Philadelphia.
- Howard, C.R., Lanphear, N., Lanphear, B.P., Eberly, S., & Lawrence, R.A. (2006). Parental responses to infant crying and colic: the effect on breastfeeding duration. *Breastfeed Med*, 1:146-155.
- Karabayir, N., & Oguz, F. 2009. Infantile colic. *Child Journal*, 9(1):16-21.
- Karbeyaz, K., Sahin, S., Akkaya, H., Balci, Y., & Gunduz, T. (2012). A death due to shaken baby syndrome; case report. *J For Med*, 26(2):134-140.
- Koc, F., Aksit, S., Turhan, T., Ersahin, Y., Tomba, A., Halicioglu, O., Aslan, A., Koturoglu, G., Aydin, C., Cetin, S., Senol, E., Celik, A., Kara, S. (2012). Shaken baby syndrome: case report. *Turkiye Klinikleri Journal of Medical Sciences*, 32(6):1781-1785.
- Matschke, J., Herrmann, B., Sperhake, J., Korber, F., Bajanowski, T., & Glatzel, M. (2009). Shaken baby syndrome: A common variant of non-accidental head injury in infants. *Dtsch Arztebl Int*, 106:211-217.
- Sahin, F., & Tasar, M.A. (2012). Shaken baby syndrome and prevention programme. *Turkish Pediatrics Archive*, 47:152-158.
- Turner, T.L., & Palamountain, S. (2017). Infantile colic: Management and outcome. UpToDate. Retrieved from: <https://www.uptodate.com/contents/infantile-colic-management-and-outcome#H35> (Acc 17/5./17)
- Yagmur, F., Asil, H., Per, H., Aslan, D., & Coskun, A. (2010). Shaken baby syndrome & 3 case reports. *Forensic Journal*, 24(1):42-49.
- Yakut, H.I., & Tunc, B. (2007). Infantile colic. *Turkey Pediatric Disease Journal*, 1(1):57-63.
- Yildiz, D. (2008). Postpartum counseling needs and approaches of mothers regarding baby care. *Gulhane Tip Jour*, 50:294-298.
- Zengin, H., Cinar, N., & Altinkaynak, S. (2016). Approach to infantile colic baby. *Journal of Human Rhythm*, 2(1):1-5.