[Downloaded free from http://www.nmsjournal.com on Wednesday, September 14, 2022, IP: 5.190.129.75]

Original Article

The Effects of Storytelling on Anxiety and Sleep in Hospitalized Children with Fracture: A Randomized Clinical Trial

Leila Valizadeh, Azam Romouzi, Parvaneh Aghajari[1], Mohammad Asghari Jafarabadi[2,3,4]

Department of Pediatric Nursing, Faculty of Nursing and Midwifery, Tabriz University of Medical Sciences, Tabriz, [1]Department of Nursing, Maragheh University of Medical Sciences, Maragheh, [4]Road Traffic Injury Research Center, Tabriz University of Medical Sciences, Tabriz, Iran, [2]Cabrini Research, Cabrini Health, VIC 3144, [3]School of Public Health and Preventative Medicine, Faculty of Medicine, Nursing and Health Sciences, Monash University, VIC 3800, Australia

ORCID:

Leila Valizadeh:
0000-0001 -7047-5309

Azam Romouzi:
0000-0002 -1985-6242

Parvaneh Aghajari:
0000-0002- 3888-8450

Mohammad Asghari Jafarabadi:
0000-0003- 3284-9749

Abstract

Background: Hospitalization induces anxiety and causes sleep disorders in children. **Objective:** This study aimed to examine the effects of listening and reading a tale on anxiety and sleeping onset time (SOT) among hospitalized children with fracture. **Methods:** This randomized clinical trial was conducted on 102 children with extremity fracture in Shohada Hospital of Tabriz in 2018–2019. Subjects were recruited consecutively and randomly allocated into three groups: control, storytelling, and simultaneous listening to and reading a tale. The data were collected using a demographic information questionnaire: questions on SOT, heart rate, and the Reynolds and Richmond Children's Anxiety Questionnaire. One-way analysis of variance, paired *t*-test, Chi-square and Fisher's exact test, and analysis of covariance were used to analyze the data. **Results:** Mean SOT, mean anxiety, and mean pulse rate did not significantly differ between the three groups at baseline. After the intervention, the mean SOT and mean pulse rate decreased significantly in all three groups ($P < 0.001$); however, the between-group differences were not statistically significant ($P > 0.50$). The mean manifest anxiety did not change significantly in any of the groups ($P > 0.05$). **Conclusion:** Storytelling had no effect on anxiety, heart rate, and SOT of children with fractures. Further studies can help determine the best method of storytelling for children with fractures.

Keywords: *Anxiety, Fracture, Hospitalized children, Sleep disorders, Storytelling*

Introduction

Illness and hospitalization could be the first crisis a child faces in life.[1] In the United States, 5 million children are hospitalized annually.[2] About 30% of children are hospitalized at least once during childhood, and 5% of them experience rehospitalization.[3] Children's limited coping mechanisms make them vulnerable to crises created by disease and hospitalization.[1] Hospitalization exerts tremendous psychological pressure on children, causes various coping problems, makes them anxious,[4] and creates a threatening experience for them.[5,6] Invasive procedures and surgeries are also

Address for correspondence: Dr. Parvaneh Aghajari, Department of Nursing, Maragheh University of Medical Sciences, Maragheh, Iran.
E-mail: p.aghajari@gmail.com

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

Submitted: 20-Dec-2021 **Revised:** 16-Apr-2022 **Accepted:** 15-May-2022
Published: 29-Jul-2022

How to cite this article: Valizadeh L, Romouzi A, Aghajari P, Jafarabadi MA. The effects of storytelling on anxiety and sleep in hospitalized children with fracture: A randomized clinical trial. Nurs Midwifery Stud 2022;11:123-9.

Access this article online

Quick Response Code:

Website: www.nmsjournal.com

DOI: 10.4103/nms.nms_132_21

[Downloaded free from http://www.nmsjournal.com on Wednesday, September 14, 2022, IP: 5.190.129.75]

extremely distressing for children. Preoperative anxiety is also associated with maladaptive behavior in children after surgery.[7] Difficulty sleeping, falling asleep, waking up problems, and nightmares are all symptoms of anxiety.[8] Sleep disorders are the most common behavioral problems in children and are associated with fatigue, anxiety, anorexia, muscle atrophy, immune system suppression, and delayed recovery.[9] Sleep disorders impair children's mental and physical development by directly affecting protein synthesis, cell differentiation, and growth hormone secretion.[9-11]

Accidents and bone fractures are the most important reasons for admitting children to hospitals.[12,13] On average, 2.1% of children suffer fractures each year.[14] Studies in Iran have shown that accidents are the leading cause of death,[15] 16% of all injuries are caused by accidents,[16] and fractures account for 81.1% of orthopedic injuries.[14] Studies show that fractures of the lower and upper limbs are common in children.[17,18] A study of 3579 cases of fractures in children under 12 years of age in Kermanshah, Iran, also reported that 65.4% and 31.2% of them had fractures of the upper and lower limbs, respectively.[19] Due to the high proportion of children and adolescents in the total population,[20] and the high prevalence of fractures among them, and due to the psychological, social, and financial consequences of fractures for patients and their families,[13] it is necessary to provide quality care to children with fractures.[20]

Surgery is one of the most common methods for treating fractures.[21,22] Fractures and hospitalization affect patients' rest, reduce their mobility, disrupt their normal sleep patterns, and impair their sleep. It has been shown that 2%-25% of hospitalized patients and 54% of patients admitted to the intensive care units suffer from sleep disorders.[9]

Nonmedical treatments for sleep disorders not only balance and enhance energy levels in the body but also increase health and comfort.[9] Various methods such as touching, looking at or reading a book, listening to a story, playing games with parents, being cared for by parents, and spending time with children have been suggested to relieve pain and comfort children.[23] Storytelling is one of the best among these treatments. Studies have revealed that listening to stories as a hobby creates comfort and removes tension before sleeping. It facilitates the secretion of serotonin in the brain and encourages the child to sleep.[24] Storytelling is also favorite of children as a nonmedical, simple, affordable, and accessible technique.[23] Numerous studies have been conducted on the effects of storytelling on anxiety and behavioral disorders in children. For instance, reading comic books has been shown to have positive effects on reducing anxiety after tonsillectomy,[25] relieving pain in children with leukemia,[26] and reducing physiological and social anxiety and distress in school-age children.[23] However, no study has examined the effects of storytelling on anxiety and sleep quality in children with fractures. Considering the high prevalence of fractures in children and the effects of anxiety and sleep disorders on their growth and recovery, and the lack of studies on the effects of storytelling on sleep quality and anxiety in children, the question is whether listening to and reading stories can reduce anxiety and improve sleep in children with fractures?

Objectives

This study aimed to compare the effects of listening to and reading a tale on anxiety and sleeping onset time (SOT) in hospitalized children with fractures.

Methods

Study design and participant

This study was a randomized clinical trial. The study was conducted in 2019 on 108 children aged 8–12 years with fracture admitted to Shohada Hospital of Tabriz, Iran. Inclusion criteria included a third- to sixth-grade student with limb fractures; an age of 8–12 years; parental consent; admission to the orthopedic department; being accompanied by the child's mother or a fixed person in the hospital; no medical diagnosis of sleep disorders, mental retardation, mental illness, and anxiety disorders; no visual or hearing problems; receiving no hypnotic medications; no invasive procedures between 9 p. m. and 11 p. m.; Iranian nationality; and the ability to read and write in Persian. Exclusion criteria included lack of child interest in participation and presence of multiple trauma. Exclusion criteria included lack of child interest in participation and presence of multiple trauma.

To determine the sample size, a pilot study was conducted with ten subjects and pulse rate was measured as a criterion for anxiety. The mean pulse rate of the participants was 90 ± 2.36 and changed to 85 ± 7.50. Then, with a type I error of 0.05, a type II error of 0.2, a S*1* of 2.36, a S*2* of 7.50, a μ*1* of 90, and a μ*2* of 85, the sample size was estimated to be 34 per group.

Data collection instruments

The data collection instrument consisted of three parts. The first part was a demographic data form and included questions on the children's age, gender, school grade, type of fracture, hospitalization history, normal nighttime sleep duration, the time between the beginning of the intervention and falling asleep, and the kinship of the accompanying person to the child. The second part was the Revised Children's Manifest Anxiety Scale (RCMAS). The RCMAS consists of 37 items, 28

[Downloaded free from http://www.nmsjournal.com on Wednesday, September 14, 2022, IP: 5.190.129.75]

of which assess anxiety and 9 of which assess the child's tendency to falsify responses. All items are answered on a yes/no scale. Each item expresses a feeling or action that reflects an aspect of anxiety. The overall score of this scale ranges from 0 to 28, and the cutoff point is 19. The higher the subject's score is above 19, the greater his or her anxiety. Taghavi and Alishahi translated the RCMAS into Persian, confirmed its content validity, and reported its test–retest reliability coefficient as 0.67.[27] In the present study, we examined the reliability of the RCMAS in 30 children before the pilot study and its internal consistency was calculated as 0.83. In this study, the RCMAS was completed by the researcher. For this purpose, the researcher asked the child the items of the scale and recorded the answers on the scale.

The Sleep Disturbance Scale for Children (SDSC) was used to evaluate sleep disorders in children. This scale has 26 items in 6 subscales of sleep breathing disorders, difficulty in initiating and maintaining sleep, disorders of arousal, sleep–wake transition disorders, excessive somnolence disorders, and hyperhidrosis during sleep. All items are scored on a Likert scale from "1: never" to "5: always." The overall score ranges from 26 to 130, and higher scores indicate more acute sleep disturbances.[28] This scale is responded by parents. The validity of this scale was confirmed in Iran and its Cronbach's alpha was 82%.[10] In the present study, we examined the reliability of the scale before the pilot study on 30 children and its Cronbach's alpha was 0.76.

Intervention

Before starting the study, we prepared a permuted block randomization schedule using STATA14 software (Stata Corp., College Station, Texas 77845 USA), and 102 supposed participants were randomly allocated into 17 blocks of 6 to be assigned to 2 intervention groups and 1 control group, 34 in each group. Subjects with the inclusion criteria were identified consequently. After their eligibility was confirmed using the SDSC and RCMAS, the children were assigned to one of the three study groups according to the randomization schedule. All mothers of the children were instructed about the suitable sleeping time for children (i.e., 9:30 pm for children aged 8 and 9 years, and 10:00 pm for children aged 10–12 years).

Data were collected twice a day (evening and night) and during the first 2 days (i.e., admission day and surgery day). On the evening of the admission day, patients' pulse rates were measured using a pocket fingertip pulse oximeter. All patients received the prescribed analgesics at least 4–6 h before the intervention and at least ½ h before the measurement of anxiety and sleeping time. The RCMAS questionnaire was filled out except for the polygraph test questions, and the second visit was conducted between 9:30 and 10 pm that night to measure the time of falling asleep. The heart rate of all patients was measured for the second time on the evening of the second day (i.e., the day of surgery). Then, subjects in the storytelling group were given an mp3 player and headphones to listen to a CD of stories for 30 min (i.e., between 9 and 10 pm). While the subject listened to the story, the researcher was present in a corner of the room to record when they fell asleep. In addition to CD and the mp3 player, subjects in the second intervention group (i.e., the group in which storytelling and reading were done simultaneously) were provided with a storybook to read and look at while listening to the same story. The researcher was again present in the room to record the time of falling asleep. The control group received no intervention [Figure 1].

Ethical considerations

This study was approved by the Ethics Committee of Tabriz University of Medical Sciences (Ethics ID: IR.TBZMED.REC.1397.334) and registered in the Iranian Registry of Clinical Trials under ID IRCT: 20180622040189N1. Participation was entirely voluntary, all parents had declared their consent, and the purpose of the study had been fully explained to them. Id numbers were used to ensure the confidentiality of the subjects' names and data.

Data analyses

The data were analyzed using descriptive and inferential statistical methods. Statistical analysis was done by SPSS Statistics software (SPSS v.13.0; SPSS Inc., Chicago, IL, USA). Normality of numerical variables was checked by Kolmogorov–Smirnov test. Data were presented using mean, standard deviation, frequency, and percentage. One-way analysis of variance was used to compare the mean age, sleep duration, SOT, manifest anxiety, and pulse rate between the three groups. Paired *t*-test was also used for within-group comparison of the outcome variables. The Chi-square and Fisher's exact tests were used to compare the categorical variables between the three groups. Analysis of covariance was used to examine the potential effects of confounding variables such as group, age, gender, education, fracture type, sleep duration at home, and caregiver (mother or another person) in the hospital on the outcome variables. The significance level was set at <0.05.

Results

The mean age of children participating in this study was 9.23 ± 5.26 years, and 54.9% of them were girls. Most of the subjects were second-grade students (33.3%) and had been hospitalized for fracture

[Downloaded free from http://www.nmsjournal.com on Wednesday, September 14, 2022, IP: 5.190.129.75]

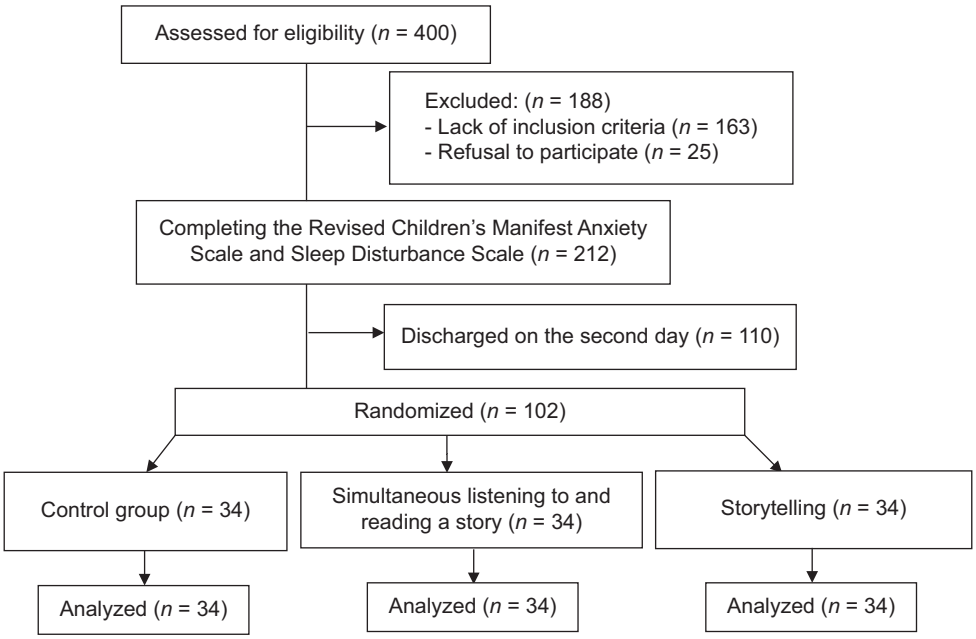

Figure 1: Study flow diagram

of the radius bone (21.56%). The study groups did not significantly differ in terms of their demographic characteristics [$P > 0.05$, Table 1].

Mean SOT, mean anxiety, and mean pulse rate did not differ significantly between the three groups at baseline. After the intervention, mean SOT and mean pulse rate decreased significantly in all three groups ($P < 0.001$); however, the differences between groups were not statistically significant [$P > 0.50$, Table 2]. Mean manifest anxiety did not change significantly in any of the groups [$P > 0.05$, Table 2].

Discussion

In the present study, none of the interventions could affect the mean anxiety in children with fractures. Although pulse rate decreased slightly in all three groups at the end of the study, the mean pulse rate of the three groups did not differ significantly. In other words, neither listening to nor reading a story could reduce mean anxiety and pulse rate in children with fractures. These findings contradict the results of some previous studies that reported that storytelling reduced anxiety in hospitalized children.[2,23,29-31] Some studies have shown that storytelling can effectively reduce hospitalization anxiety and behavioral disorders in children undergoing surgery.[6,25] Ajorloo *et al*. also reported that storytelling reduced symptoms of anxiety in children undergoing chemotherapy. They concluded that storytelling, along with other psychological treatments, could be used to treat anxiety in children and particularly in children with health problems.[29] Some studies also reported that storytelling was effective on aggression and withdrawal in preschool[32] and school-age children.[33] The contradictory results might be attributable to the fact that in the aforementioned studies, storytelling was conducted by the researcher and the live interaction between the researchers and the children might contribute to the positive effects.[25,32] Furthermore, some studies conducted more sessions of storytelling. For example, Shabib Asl *et al*. conducted nine sessions of storytelling.[32] In addition, most studies used storytelling in children with chronic disorders, whereas the present study focused on children with fractured limbs, which is an acute condition that occurred accidentally. Sekhavatpour *et al*. investigated the effects of reading comic books on posttonsillectomy anxiety in children aged 4–8 years. In their study, children read animated books on surgery and feelings before and after tonsillectomy for 30 min the night before surgery. They used RCMAS and Behavioral Disorders Inventory to measure anxiety after reading the story and 10 days after the surgery. Their findings revealed that reading animated illustrated books can effectively reduce anxiety and behavioral disorders in children after surgery.[25] Again, this was not consistent with our results. The contradictory results may be attributed to the differences in interventions, study settings, children's ages, and other social and individual characteristics of the subjects studied.

Most children become anxious after being hospitalized. Fear of surgery also exacerbates their anxiety. This anxiety, in turn, disturbs their sleep patterns.[14] Our findings showed that the SOT was significantly reduced in all three groups on the second night. Nevertheless,

[Downloaded free from http://www.nmsjournal.com on Wednesday, September 14, 2022, IP: 5.190.129.75]

Table 1: Comparison of demographic characteristics between the control and intervention groups

Variable	Group			*P*
	Storytelling, *n* (%)	Simultaneous listening to and reading a story, *n* (%)	Control, *n* (%)	
Sex				
Male	14 (41.2)	16 (47.1)	16 (47.1)	0.85[a]
Female	20 (58.8)	18 (52.9)	18 (52.9)	
Education level				
Grade 2	13 (38.2)	9 (26.5)	12 (35.3)	0.92[b]
Grade 3	10 (29.4)	9 (26.5)	8 (23.5)	
Grade 4	6 (17.6)	7 (20.6)	5 (14.7)	
Grade 5	4 (11.8)	8 (23.5)	7 (20.6)	
Grade 6	1 (2.9)	1 (2.9)	2 (5.9)	
Fractured bone				
Radius	9 (26.5)	4 (11.8)	8 (23.5)	0.41[b]
Tibia	5 (14.7)	2 (5.9)	7 (20.6)	
Forearm	4 (11.8)	2 (5.9)	7 (20.6)	
Patella	3 (8.8)	1 (2.9)	1 (2.9)	
Toe bone	0	1 (2.9)	1 (2.9)	
Humorous	5 (14.7)	8 (23.5)	6 (17.6)	
Femur	2 (5.9)	3 (8.8)	2 (5.9)	
Calcaneus	1 (2.9)	0	0	
Ankle	0	3 (8.8)	2 (5.9)	
Sole	0	1 (2.9)	0	
Clavicle	1 (2.9)	0	0	
Elbow	4 (11.8)	1 (2.9)	4 (11.8)	
Caregiver at the hospital				
Mother	29 (85.3)	29 (85.3)	31 (91.2)	0.70[b]
Grandmother/another one	5 (14.7)	5 (14.7)	3 (8.8)	
Age[c]	10.97±4.81	11.35±6.12	11.18±4.86	0.89[d]
Sleep duration at home[c]	22.18±3.86	22.24±3.65	22.95±0.94	0.82[d]

[a]Chi-square test, [b]Fisher's exact test, Chi-square test, [c]Data are presented as mean±SD, [d]ANOVA. SD: Standard deviation, ANOVA: Analysis of variance

Table 2: Between- and within-group comparison of the mean scores of sleep onset time, manifest anxiety, and pulse rate before and after the study

Variable/ time	Groups			*P*[a]
	Storytelling	Simultaneous listening to and reading a story	Control	
Sleep onset time				
Before	110.88±55.49	90.44±49.05	88.09±58.21	0.23
After	57.71±31.86	48.09±20.85	48.38±18.53	0.50
P[b]	<0.0001	<0.0001	<0.001	
Manifest anxiety				
Before	5.03±2.74	5.94±2.14	6.01±2.44	0.42
After	4.64±1.88	5.56±2.13	5.26±2.12	0.39
P[b]	0.11	0.14	0.07	
Pulse rate				
Before	95.88±10.24	94.65±11.60	92.68±7.87	0.41
After	92.32±8.15	90.32±8.64	87.76±16.67	0.50
P[b]	0.03	0.04	0.02	

[a]ANOVA, [b]Paired samples *t*-test. Data presented as mean±SD. SD: Standard deviation, ANOVA: Analysis of variance

no significant difference was found between the mean SOTs of the three groups. Therefore, the reduction in SOT in the study groups could not be attributed to the intervention. It seems that the longest SOT occurred on the first night of hospitalization, and children fell asleep faster on the second night. This finding may be attributed to greater anxiety on the first night. Familiarity with the hospital environment and reduction of pain and discomfort on the second night may have reduced the children's anxiety, which in turn shortened their SOT. Nevertheless, earlier studies have shown that storytelling can reduce the SOT in children with chronic conditions.[9] Another study in Turkey also reported that storytelling could improve sleep quality in hospitalized preschool children.[34] Storytelling was also able to reduce pain in children with leukemia[26] and improve sleep quality and sleeping habits in children with cancer who were undergoing chemotherapy.[26,29] The conflicting findings of our study might be attributable to the differences in interventions and/or personal traits of the participants. For example, Yuniartini in Turkey conducted

[Downloaded free from http://www.nmsjournal.com on Wednesday, September 14, 2022, IP: 5.190.129.75]

storytelling in preschool children on three consecutive nights.[34] Some studies also conducted their intervention in children with chronic illnesses,[9,26,29] while our participants were children with fractures, that is an acute problem with acute pain and discomfort. Furthermore, in most studies, storytelling was performed by the researcher or the patient's companion, whereas we used CDs, mp3 players, and headphones for this purpose. The lack of direct interaction between the storyteller and the child may have reduced the effectiveness of the intervention. However, the time we chose for storytelling may also affect the outcome. It is also possible that the time chosen for storytelling was inappropriate in the present study.

The present study was conducted merely on children hospitalized at Shohada Hospital of Tabriz, and its findings cannot be generalized to other children. Furthermore, the mental status of the children and the amount of their daily sleep might have influenced the outcome, but these variables were beyond our control. Furthermore, all children received an analgesic for pain, which could have influenced their sedation and the outcome of the study. We also used self-report instruments, which can increase the risk of social desirability bias.

Conclusion

In this study, storytelling had no effect on anxiety, heart rate, and SOT of children with fractures. Further studies can help determine the best method of storytelling for children with fractures.

Acknowledgments

This paper resulted from the research thesis (project number 831) conducted in partial fulfillment of a master's degree in pediatric nursing at Tabriz University of Medical Sciences. The researchers would like to express their gratitude to the Deputy of Research of the Faculty of Nursing and Midwifery for financial support and to all the nurses and parents who contributed to the conduct of this study.

Financial support and sponsorship

This study received financial support from Tabriz University of Medical Sciences, Tabriz, Iran.

Conflicts of interest

There are no conflicts of interest.

References

1. Hockenberry M, Wilson D, Rodgers C. Wong's Essentials of Pediatric Nursing-eBook. Vol. 10. Canada: Elsevier Health Sciences; 2016.
2. Karami J, Momeni KH, Mohammadi F, Shahbazirad A. The effectiveness of narrative therapy for reducing symptoms of separation anxiety in children. Iran J Pediatr Nurs 2015;1:48-56.
3. Bekmaz K, Hojjati H, Akhoundzadeh G. Relationship between mothers' concerns and nursing support of children admitted to Baqiyatallah Al-Azam Hospital of Ali Abad Katoul, Golestan Province, Iran, in 2018. Mod Care J 2019;16:e92471.
4. Lerwick JL. Minimizing pediatric healthcare-induced anxiety and trauma. World J Clin Pediatr 2016;5:143-50.
5. Li WH, Chung JO, Ho KY, Kwok BM. Play interventions to reduce anxiety and negative emotions in hospitalized children. BMC Pediatr 2016;16:36.
6. Kanchan L, Sharma CH, Aarti S. Randomized clinical trial to evaluate the effectiveness of storytelling by researcher on the hospitalization anxiety of children admitted in pediatric ward of selected hospitals of District Patiala, Punjab. Int J Sci Res 2015;4:706-9.
7. Batuman A, Gulec E, Turktan M, Gunes Y, Ozcengiz D. Preoperative informational video reduces preoperative anxiety and postoperative negative behavioral changes in children. Minerva Anestesiol 2016;82:534-42.
8. Brown WJ, Wilkerson AK, Boyd SJ, Dewey D, Mesa F, Bunnell BE. A review of sleep disturbance in children and adolescents with anxiety. J Sleep Res 2018;27:e12635.
9. Sadat Hoseini A. A survey of the effect of non pharmacological intervention to improve of sleep in pediatric, that suffering of chronic illness. Iran J Nurs Res 2013;7:60-72.
10. Ghaneian M, Kazemi-Zahrani H. Prevalence of sleep disturbance and neuropsychological learning disabilities in preschool children in Isfahan City. J Shahid Sadoughi Univ Med Sci 2016;24:501-12.
11. Eugene AR, Masiak J. The neuroprotective aspects of sleep. MEDtube Sci 2015;3:35-40.
12. Mobasheri F, Azizi H, Rastbaf F. The epidemiological pattern of injuries among children under 15 years of age in Fasa in 2013. J Fasa Univ Med Sci 2016;6:69-78.
13. Aghakhani K, Ameri E, Ameri M, Mohtarami S. Epidemiology of orthopedic trauma in children and adolescent in a referral center in Tehran: A prospective study. Tehran Univ Med J 2015;73:40-8.
14. Zhaleh M, Borji S, Sohrabi N, Abasifard Z. Upper and lower extremities fractures in children under 12 years referred to Taleghani Hospital in Kermanshah, 2003-2014. J Clin Res Paramed Sci 2016;5:86-9.
15. Vahhab E, Gholamzadeh S, Zarenezhad M. Injury-related pediatric mortality in Shiraz, Iran: A community-based survey. Shiraz E Med J 2019;20:e69815.
16. Mirahmadizadeh A, Hemmati A, Zahmatkesh S, Saffari M, Bagheri P. Incidence of accidents and injuries in children under 6 years old in southern Iran: A population-based study. J Inj Violence Res 2020;12:135–144.
17. Merckaert S, Chaibi E, Meriem S, Kwiatkowski B, Divjak N, Zambelli PY. Epidemiology of pediatric upper extremity fractures in a tertiary care center in Switzerland. Pediatr Emerg Care 2021;37:e825-35.
18. Chaibi E, Zambelli PY, Merckaert S. Epidemiology of paediatric lower extremity fractures in a tertiary care center in Switzerland. Eur J Trauma Emerg Surg 2020; 1-11. https://doi.org/10.1007/s00068-020-01400-6.
19. Zhaleh M, Borji S, Abasifard Z, Safi F, Shahsavari S. Assessment of limb fractures in children below 12 years of age. Trauma Mon 2017;23:e63243.
20. Asadi P, Asadi K, Rimaz S, Monsef-Kasmaie V, Zohrevandi B, Mohtasham-Amiri Z. Epidemiology of trauma in children admitted to Poursina teaching hospital. J Guilan Univ Med Sci

[Downloaded free from http://www.nmsjournal.com on Wednesday, September 14, 2022, IP: 5.190.129.75]

2015;23:9-15.
21. Caruso G, Caldari E, Sturla FD, Caldaria A, Re DL, Pagetti P, *et al.* Management of pediatric forearm fractures: What is the best therapeutic choice? A narrative review of the literature. Musculoskelet Surg 2021;105:225-34.
22. Pace JL. Pediatric and adolescent forearm fractures: Current controversies and treatment recommendations. J Am Acad Orthop Surg 2016;24:780-8.
23. Zarei K, Parandeh Z, Seyedfatemi N, Khoshbakht F, Haghani H, Zarei M. Impact of storytelling on physiological, worry and social anxieties in hospitalized school-aged children. Med Surg Nurs J 2013;2:115-21.
24. Strøm-Tejsen P, Zukowska D, Wargocki P, Wyon DP. The effects of bedroom air quality on sleep and next-day performance. Indoor Air 2016;26:679-86.
25. Sekhavatpour Z, Khanjani N, Reyhani T, Ghaffari S, Dastoorpoor M. The effect of storytelling on anxiety and behavioral disorders in children undergoing surgery: A randomized controlled trial. Pediatric Health Med Ther 2019;10:61-8.
26. Yuosef Pour N, Agha Yousefi A. The effect of atorytelling in pain reduction of children with leukemai. Q J Health Psychol 2014;3:82-96.
27. Taghavi M, Alishahi M. Evaluation of validity and reliability of revised children main fast anxiety scale. J Psycol 2005;7:342-54.
28. Bruni O, Ottaviano S, Guidetti V, Romoli M, Innocenzi M, Cortesi F, *et al.* The Sleep Disturbance Scale for Children (SDSC). Construction and validation of an instrument to evaluate sleep disturbances in childhood and adolescence. J Sleep Res 1996;5:251-61.
29. Ajorloo M, Irani Z, Aliakbari Dehkordi M. Story therapy effect on reducing anxiety and improvement habits sleep in children with cancer under chemotherapy. Health Psychol 2016;5:87-107.
30. Ghorbani R, Raeisi Z. The effect of narrative therapy on school anxiety in female primary students. J Child Ment Health 2020;6:168-78.
31. Hakim A, Shafiey M, Bassak Nedjad S, Hossien Haghighizadeh MH. Impact of storytelling on anxiety in 4-7 year old children in hospital: A randomized clinical trial study. Avicenna J Nurs Midwifery Care 2018;26:155-64.
32. Shabib Asl N, Naderi F, Makvandi B. The effect of storytelling on behavioral problems (aggression-withdrawal) of preschoolers' in Ahvaz. J Appl Environ Biol Sci 2015;5:353-7.
33. Fazeli E. The effectiveness of storytelling on aggression and anxiety in elementary school students. J Soc Sci 2018;12:227-46.
34. Yuniartini N. The effect of storytelling therapy before sleep in sleep quality preschool age children undergoing hospitalization in the child care room Sanglah hospital Denpasar. Community of Publishing in Nursing 2013;1:1-6.