

SOCIODEMOGRAPHIC DETERMINANTS FOR RISK EXPOSURE OF CHILD INJURIES AT HOME WITH FOCUS ON BURNS

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Abstract

Burns are a significant public health problem that occurs at home and especially affect children. Non-fatal burn victims suffer from prolonged hospitalization, disfigurement and disability, with consequences of stigma and rejection. The survey on child injuries at home with focus on burns showed that sociodemographic determinants play an important role for child safety at home. The majority of home injuries were attributable to human and environmental factors. The main ways for prevention, including education, safe environment creation, legislation and enforcement can prevent child injuries (including burns or scalds) and promote safety at home, saving the lives of vulnerable age groups, especially children.

Keywords: *child, injury, home safety, burn, scald, sociodemographic determinants.*

Introduction

In the European region, injuries are the leading cause of death in children aged 5 to 19 years (Sleet, 2018). In Europe, nearly 42,000 children and adolescents aged 0-19 years die annually from unintentional injuries, and in the United States, about 19 children aged 1-19 die every day from an unintentional injury (Ballesteros, Web, & McClure, 2017; Sleet, 2018). A large proportion of injuries, and especially child injuries, occur in or around the home (Seah et al, 2019; Sleet, 2018; WHO, 2019). It is known, that in the European Union, home and leisure time injuries account for 50-70% of all injuries, and around two-thirds of injury related emergency department attendances occur as a result of injuries at home or during leisure activities (EuroSafe, 2016; Kisser & Bauer, 2019; MSAH, 2014).

Mortality and morbidity from childhood injuries are charging a heavy economic burden to society. Child injuries as well represent a huge burden to the injured persons, their family, and to community (Sleet, 2018). In particular, child safety at home is an important issue. Burns are a significant global public health problem, accounting for an estimated 180 000 deaths annually

worldwide, and are the fifth most common cause of non-fatal childhood injuries (Ellsäßer, Trost-Brinkhues, & Albrecht, 2014; Seah et al, 2019; WHO, 2019). It was calculated that worldwide, mortality rate from burns in children aged 0 to 4 years is 10.89/100,000 population, and in the European Region – 5.15/100,000 (Adeloye, 2014). However, the magnitude of the burn injury can be even greater. Most studies of injury incidence underestimate the total burden of injury, as they do not include injuries treated in primary care or even at home (Ohm et al, 2019). Burns are responsible for a prolonged hospitalization, disfigurement and disability, often with resulting stigma and rejection (Baker et al, 2016; WHO, 2019).

Burns particularly affect young children (Seah et al, 2019; Van Zoonen & Baardse, 2016; WHO, 2019). In Australia, childhood burns account for a large proportion of hospitalised morbidity (Seah et al, 2019). In the Netherlands, 26.8% of the patients with burn injuries who required admission to the hospital were children under 5 years of age (Van Zoonen & Baardse, 2016). Epidemiological studies in Germany showed that infants and toddlers were at most risk of injury; of all children under the age of 15 years, they had the highest rates of fatal and severe injuries (Ellsäßer, Trost-Brinkhues, & Albrecht, 2014). During the study on thermally injured children in Germany and Austria, the data over 2006 to 2015 showed that of 13,460 thermally injured hospitalized children, the majority were aged 12 to 36 months, and 56.5% were boys (Tegtmeyer et al, 2018). In Ireland, 57% of burn injuries occurred in children under three years (McGuire et al, 2017). Improper child supervision could increase risk of child injuries (WHO, 2019).

Luckily in 2018, the fatal burns in the age groups from 0 to 24 years were not recorded and total number of deaths was decreasing in Lithuania; although the amount of non-fatal injuries from burns remains rather high (HI, 2019; Kubilius, Rimdeika, & Kazanavicius, 2012). The biggest number of non-fatal burns occurred at home environment (86%) and in children. Burns affected mostly children in the age group of 0 to 14 years, mainly children aged less than 3 years. In Lithuania, the morbidity from burns is increasing (Kubilius, Rimdeika, & Kazanavicius, 2012).

Every parent, as well as society as a whole, has a responsibility to give children a safe environment in which to live, learn, grow and play. Yet, injury is the leading cause of death and disability for children in every Member State in Europe (EuroSafe, 2019). Therefore, it is of importance to study child injury risk factors, causes and possible ways for prevention. Seeing that burn risk correlates with socioeconomic status (WHO, 2019), research on social and demographic determinants, sociodemographic characteristics are nowadays the priority issues for decreasing the burden of injuries. The focus should be targeted to the saving of health and lives of the most vulnerable groups of society, including children.

The aim of this study was to analyse sociodemographic determinants for risk exposure of child injuries at home with focus on burns.

Research Methodology

The study investigated child injuries at home and burns. The parents of children aged 0 to 6 years responded to the questions given to them about their child. The parents were of children who attend kindergarten or another similar educational institution.

The written survey was used for this study. The survey was conducted in Lithuania in 2018-2019. A random cluster sample was applied. The respondents (parents of kindergarten children) were selected and surveyed. After explaining the aim of the study, the questionnaires were handed out to the parents upon their arrival to take the child from the kindergarten. Once

completed, the questionnaires were collected. We analysed those questionnaires in which more than half of the questions were answered. During our study, 759 answered and returned questionnaires were analysed (the response rate was 94.88%). The survey was voluntary and anonymous. The study was approved by the Bioethics Committee.

The questionnaire consisted of closed-type items. There were a general (socio-demographic) part and a specific part in the questionnaire. There were items in the general part of questionnaire with the data on gender, living area, age groups, and housing type. The specific part of the questionnaire consisted of four sections. The section one was on the burn features, the section two – on treatment, the section three – on consequences, and the section four was on prevention. Parents had to select the correct answer from 3-5 suggested options or to mark the selective answer (“yes” or “no”; “yes”, “no”, or “don’t know”). The reliability of the questionnaire was examined with the internal consistency measure of Cronbach’s alpha, and the questionnaire form was piloted, discussed and corrected. SPSS 24 for Windows was used for statistical analysis. The Chi-square test was applied to evaluate the significance of the association between the categorical variables. The significance level $p \leq 0.05$ was considered statistically significant.

Totally 759 children aged 0 to 6 years were investigated: 392/51.6% boys and 367/48.4 girls, 369/48.6% urban and 390/51.4% rural residents, 270/35.6% aged 0-3 years and 489/64.4% aged 4-6 years, 371/48.9% lived in a private house and 388/51.1% were accommodated in an apartment.

Results

The survey revealed that 206/27.1% of all investigated children were injured at home. Burns made up 67.5% of all the injuries in children in the home environment. From the whole group of 759 investigated children, 139/18.3% had burn injuries. There were more boys among these injured children – 83/59.7% (the rest were girls – 56/40.3%). 68/48.9% were from urban and 71/51.1% – from rural living areas. Children aged 4 to 6 years were 110/79.1%, and 0 to 3 years – 29/20.9%. Respondents, who live in a private house, were 77/55.4%, and in an apartment – 62/44.6%.

The study showed that the most of all burns were scalds (injuries affected by hot fluid) – 100/71.9%. Electrical equipment was on the second place – 30/21.6%, and then flame – 7/5%. Girls (51/91.1%) had scalds significantly more often than boys (49/59%), but more boys were injured by electrical equipment (26/31.3%) and by flame ($\chi^2 = 18.632$; $df = 3$; $p < 0.001$). According to the living area, the most of burn injuries were scalds both in urban and rural settings, but in rural areas there were more children injured by electrical equipment, and in urban areas there were more burns from flame ($\chi^2 = 11.234$; $df = 3$; $p = 0.011$). There were no significant differences between age groups and the mean of burn ($\chi^2 = 5.478$; $df = 3$; $p = 0.14$), and between housing (living in the private house or apartment) ($\chi^2 = 10.482$; $df = 3$; $p = 0.15$) (Table 1).

Table 1. Agent of burn/scald

Sociodemographic characteristics		Hot fluid (scald)	Flame	Electrical equipment	Other	χ^2	df	p-value
		Absolute numbers/Percent						
Gender	Boys	49/59.0	7/8.4	26/31.3	1/1.2	18.632	3	0.000*
	Girls	51/91.1	0	4/7.1	1/1.8			
Living area	Urban	48/70.6	7/10.3	11/16.2	2/2.9	11.234	3	0.011*
	Rural	52/73.2	0	19/26.8	0			
Age	0-3	25/86.2	2/6.9	2/6.9	0	5.478	3	0.140
	4-6	75/68.2	5/4.5	28/25.5	2/1.8			
Housing	Private house	2/2.6	52/67.5	23/29.9	0	10.482	3	0.150
	Apartment	5/8.1	48/77.4	7/11.3	2/3.2			

p*≤ 0.05

The survey results revealed that most of burns happened in the kitchen (84/60.4%). Room was on the second place of the injury event (38/27.3%), and few burns occurred in the yard (9/6.5%). Significantly more girls were burned in the kitchen (43/76.8%), but fewer of them, when compared with boys, were injured in the room, and no one – in the bathroom ($\chi^2 = 13.931$; $df = 3$; $p = 0.003$). Most of either urban (40/58.8%) or rural (44/62%) children were injured from burn in the kitchen. However, more kids that are rural were injured in the room and in the bathroom, and no one of them – in the yard. More toddlers aged 0 to 3 years were burned in the kitchen (25/86.2%) than children aged 4 to 6 years (59/53.6%); whereas children aged 4-6 years were more burned/scalded in the room and bathroom ($\chi^2 = 11.749$; $df = 3$; $p = 0.008$). There were no significant differences between injured children living in the private house or in the apartment ($\chi^2 = 5.946$; $df = 3$; $p = 0.114$) (Table 2).

More children were burned or scalded in winter (55/39.6%) than in other seasons of the year. Similar number of children were injured by burn in summer (28/20.1%), in autumn (30/21.6%), and slightly less – in spring (26/18.7%). There were no significant differences between gender and season of the year ($\chi^2 = 0.449$; $df = 3$; $p = 0.93$). Similar insignificant results were observed for the age groups and seasonal differences ($\chi^2 = 0.952$; $df = 3$; $p = 0.813$). Significantly more rural children were burned/scalded during autumn-winter period, whereas urban residents were more burned or scalded during summer-spring time ($\chi^2 = 21.525$; $df = 3$; $p < 0.001$). Both inhabitants accommodated in a private house (34/44.2%) or in an apartment (21/33.9%) were injured by burn mainly in winter, but more private house users were injured in autumn (29.9%), and more apartment-placed children were injured in summer (29%) and spring (25.8%) ($\chi^2 = 13.819$; $df = 3$; $p = 0.003$) (Table 3).

Table 2. Place of the burn event

Sociodemographic characteristics		Kitchen	Room	Bathroom	Yard	χ^2	df	p-value
		Absolute numbers/Percent						
Gender	Boys	41/49.4	26/31.3	8/9.6	8/9.6	13.931	3	0.003*
	Girls	43/76.8	12/21.4	0	1/1.8			
Living area	Urban	40/58.8	16/23.5	3/4.4	9/13.2	10.578	3	0.014*
	Rural	44/62.0	22/31.0	5/7.0	0			
Age	0-3	25/86.2	2/6.9	0	2/6.9	11.749	3	0.008*
	4-6	59/53.6	36/32.7	8/7.3	7/6.4			
Housing	Private house	45/58.4	25/32.5	5/6.5	2/2.6	5.946	3	0.114
	Apartment	39/62.9	13/21.0	3/4.8	7/11.3			

p*≤ 0.05

Table 3. Season of the burn event

Sociodemographic characteristics		Summer	Autumn	Winter	Spring	χ^2	df	p-value
		Absolute numbers/Percent						
Gender	Boys	18/21.7	17/20.5	32/38.6	16/19.3	0.449	3	0.930
	Girls	10/17.9	13/23.2	23/41.1	10/17.9			
Living area	Urban	21/30.9	7/10.3	22/32.4	18/26.5	21.525	3	0.000*
	Rural	7/9.9	23/32.4	33/46.5	8/11.3			
Age	0-3	4/13.8	7/24.1	12/41.4	6/20.7	0.952	3	0.813
	4-6	24/21.8	23/20.9	43/39.1	20/18.2			
Housing	Private house	10/13.0	23/29.9	34/44.2	10/13.0	13.819	3	0.003*
	Apartment	18/29.0	7/11.3	21/33.9	16/25.8			

p*≤ 0.05

The survey showed the localisation of burns in children. During the burn event, nearly half of all children (68/48.9%) injured the upper extremities. 32/23% of children burned the lower extremities, 27/19.4% – the head, and 12/8.6% – the body. There were no significant differences between the injury localisation and gender, living area, age, and housing ($\chi^2 = 3.803$; $df = 3$; $p = 0.284$) (Table 4).

Table 4. Localisation of burn/scald

Socialdemographic characteristics		<i>Head</i>	<i>Upper extremities</i>	<i>Body</i>	<i>Lower extremities</i>	χ^2	df	p-value
		Absolute numbers/Percent						
Gender	<i>Boys</i>	15/18.1	42/50.6	9/10.8	17/20.5	2.056	3	0.561
	<i>Girls</i>	12/21.4	26/46.4	3/5.4	15/26.8			
Living area	<i>Urban</i>	14/20.6	31/45.6	8/11.8	15/22.1	1.961	3	0.581
	<i>Rural</i>	13/18.3	37/52.1	4/5.6	17/23.9			
Age	<i>0-3</i>	7/24.1	12/41.4	0	10/34.5	6.100	3	0.107
	<i>4-6</i>	20/18.2	56/50.9	12/10.9	22/20.0			
Housing	<i>Private house</i>	13/16.9	41/53.2	4/5.2	19/24.7	3.803	3	0.284
	<i>Apartment</i>	14/22.6	27/43.5	8/12.9	13/21.0			

p*≤ 0.05

Our study revealed that most of children with burns were treated at home (99/71.2%). 20/14.4% of children were treated at the primary health care centre as outpatients, and 20/14.4% of children with burns received hospital treatment. A person nearby provided first aid for 129/89.9% of burned children, and a physician or nurse – for 14/10.1%. Almost a half of children (61/43.9%) after being injured were treated 2 to 3 days (1 day – 7/5%; 4 to 6 days – 33/23.7%; 1 to 3 weeks – 36/25.9%, and 4 and more weeks – 2/1.4%). The consequences (complications) after burn/scald were recorded for 39/28.1% of children. Physical impairment was observed for 2/1.4%, and mental disability – for 4/2.9% of injured children. 43/31% of children suffered from body scars after burn.

This survey showed the parents' thoughts on injury prevention and control. 103/74.1% of parents responded that they had much knowledge on child safety at home, 33/23.7% – stated that they have average knowledge, and 3/22.2% – little knowledge. 79 (56.8%) parents received knowledge on child safety at home from their parents or relatives, 25/18% – from health professionals, 24/17.3% – from media, and 3/22% – from friends. Most of parents (88/63.3%) underlined that the main problem in child burn injuries is that adults lack knowledge on how to adjust home environment for child safety enhancement. Parents responded that the cause of injury could also be an unsafe environment (82/59%) and busy parents (90/64.7%). Most of parents underlined that for child burn prevention the prevention measures should be addressed to the fireplace barriers (93/66.9%), thermostats for hot water regulation (103/74.1%), smoke alarms (106/76.3), child supervision (135/97.1%), mass media (101/72.7%), social networks (87/62.6%), parents' education (101/77.7%), and child education (121/87.1%).

Discussion

Our study showed that nearly one-fifth of investigated children had burn injuries. Nearly one-third (27.1%) of investigated children were injured at home. Most of children injured in the home environment suffered from burns. Burns occurred mainly indoors, more in boys, and in children aged 4 to 6 years. Most of injuries in children were scalds (injuries by hot fluid) (71.9%). Most of burns occurred in the kitchen and in wintertime. The main location of the burn were the upper extremities (48.9%).

The studies from the United States (US), Iran, the Netherlands, Ireland, Austria and Germany revealed that most of burns in little children were scalds as well (71-74%) (Hashemi et al, 2017; McGuire et al, 2017; Lee et al, 2016; Van Zoonen & Baardse, 2016; Tegtmeyer et al, 2018). In Australia, contact with heat and other substances, hot drinks, food, fats and cooking oils were the most common burn mechanisms, and the home was the most common place of occurrence for children ≤ 10 years (Seah et al, 2019). In California State of the United States of America, one of the leading causes of scald burn injury in children was hot soup, particularly pre-packaged instant soup (Palmieri et al, 2008). In the US, 53% of scalds were attributable to hot liquids related to cooking, including coffee or tea (Lee et al, 2016). According to WHO, child burns occur mainly at home. Children were injured in domestic kitchens, from upset receptacles containing hot liquids or flames, or from cook stove explosions (WHO, 2019).

In Ireland (95%), in the US (66.3%), and in Iran the highest numbers of burns/scalds occurred at home too (Hashemi et al, 2017; McGuire et al, 2017; Lee et al, 2016). In Iran, the incidence of child burns in boys was greater than in girls (Hashemi et al, 2017). Behavioural and temperamental differences between boys and girls have been proposed as explanations for the well-established relationship between gender and injury risk. Adjustment for development, temperament and behaviour did barely attenuate this relationship (Myhre et al, 2012). In the US, the lower extremities were the most common site (38.5%), whereas in our study the upper extremities were the most common localisation of the burn in children (Lee et al, 2016).

Our study revealed that most of burns occurred in the kitchen and from hot liquids, which shows that adults still lack knowledge on safety at home and are not enough aware of the development and security of the little child. Winter season should be considered as the most risky period of the year. Children in Lithuania in wintertime stay longer indoors, because of unattractive weather conditions, rain, wind, and long dark hours; there is no similar tradition like in Nordic neighbourhood, where children stay longer outdoors despite the season of the year and various climate conditions.

This study showed that child burns could determine disabilities and disfigurement in children, which could cause human suffering, limitations, and stigma. In addition, the economic burden of extra costs for treatment and rehabilitation for family and society appears. The research presented that only a little part of parents get appropriate professional preventive knowledge from health experts and the rest of parents take example from their family, friends or media.

Burns could and should be prevented. There are examples of evidence-based, successful efforts to reduce child injury, child burn mortality and morbidity rates, and disability using a combination of prevention strategies and interventions. For the four most frequent child injury mechanisms (drowning, poisoning, burning, and falling), the World Health Organization (WHO) recommended a set of measures covering legislation, regulations, changes of environment, education, and emergency medical care. The effective interventions related to safety at home concluded that informing parents personally (face-to-face) and in combination with free safety equipment (e.g., smoke alarms) increased parents' safety practices significantly. Multifaceted education programs for parents (e.g., visiting programs at home or in paediatric clinics) proved to have the high effect in reducing child home injuries. Postnatal interventions at the community level were especially useful for integrating injury prevention at home, because they were connected with family visiting programs (WHO, 2019; Ellsäßer, Trost-Brinkhues, & Albrecht, 2014).

Prevention strategies should address the hazards for specific burn injuries, education of vulnerable populations, and training of communities in first aid. An effective burn prevention

plan should be multisectorial and include broad efforts to improve awareness, develop and enforce effective policy, describe burden and identify risk factors, set research priorities with promotion of promising interventions, provide burn prevention programmes, strengthen burn care, strengthen capacities to carry out all of the above. In addition, there are a number of specific recommendations for individuals, communities and public health officials to reduce burn risk (WHO, 2019). Effective prevention strategies of hot beverage scald, targeted towards parents and caregivers in the home, are required (McGuire et al, 2017). Parents must know about the risks of scalding, the ability to perform precautionary measures and parents must be willing to perform these measures. In order to develop effective prevention interventions, it is necessary to gain insight into the motivation of parents to perform safe or unsafe behaviour formed by the determinants of behaviour (Van Zoonen & Baardse, 2016). To assist in reducing burn hospitalisations, the development, implementation and resourcing of national multi-sectorial childhood injury prevention is needed (Seah et al, 2019).

In the EU, a comprehensive EU reporting scheme on risks and safety measures exists, e.g., for road traffic crashes, but not for home and leisure injuries. Exchanging core indicators on the health burden and sharing experiences on strategies and actions could help to enhance home and leisure safety in Europe (Kisser & Bauer, 2019). National target programs, as, for instance, Target Programme used in Finland is an example of effective prevention strategy on the national level (MSAH, 2014). The good practice showed that training provided for mothers to prevent child injuries was effective in improving the awareness of the mothers (Kahriman & Karadeniz, 2018). Smoke and carbon monoxide detectors (smoke alarms) are advisable for preventing fire injuries and deaths at home (Sengolge & Vincenten, 2013). An example of good practice, used previously in Austria, Australia, and Germany, was the initiative called “*The world through the eyes of a child*”. This idea was recently updated in Belgium in now so-called project *Giant House*, in which the interior of a house is scaled to size for adults, so that they can experience their house ‘through the eyes of a child’ (Boon & Kremer, 2019). In addition, there are a number of specific recommendations for individuals, communities and public health officials to reduce burn risk, as presented bellow (WHO, 2019):

- Enclose fires and limit the height of open flames in domestic environments.
- Promote safer cook stoves and less hazardous fuels, and educate regarding loose clothing.
- Apply safety regulations to housing designs and materials, and encourage home inspections.
- Improve the design of cook stoves, particularly with regard to stability and prevention of access by children.
- Lower the temperature in hot water taps (using thermostats etc.).
- Promote fire safety education and the use of smoke detectors, fire sprinklers, and fire-escape systems in homes.
- Promote the introduction of and compliance with industrial safety regulations, and the use of fire-retardant fabrics for children’s sleepwear.
- Encourage further development of burn-care systems, including the training of health-care providers in the appropriate triage and management of people with burns.
- Support the development and distribution of fire-retardant aprons to be used while cooking around an open flame or kerosene stove.

More efforts that are comprehensive are needed to prevent child burns and injuries at home. Education and training (both for parents and for children), educational changes, legislation and enforcement should be used for child injury prevention and safety promotion. National strategies and programmes are of great importance as well.

Conclusions

Nearly one-fifth (18.3%) of all the children who participated in the study had burn injuries. Nearly one-third (27.1%) of children were injured at home. Burns is the most frequent injury (67.5%) in children in the home environment. Burns occur mainly indoors, in boys, in children aged 4 to 6 years. Most of burns were scalds (injuries affected by hot fluids), occurred in the kitchen, and in wintertime. The main locations of the burn were the upper extremities. The study confirmed that sociodemographic determinants play an important role for child safety in the home environment. Preventive activities and actions need to be implemented for enhancing child safety at home. The main ways for prevention, including education, safe environment creation, legislation and enforcement could help to prevent injuries and burns, saving the lives of children – one of the most vulnerable age group.

References

- Adeloye, D., Bowman, K., Chan, K., Patel, S., Campbell, H., & Rudan, I. (2018). Global and regional child deaths due to injuries: An assessment of the evidence. *Journal of Global Health*, 8(2), 021104.
- Baker, R., Tata, L. J., Kendrick, D., Burch, T., Kennedy, M., & Orton, E. (2016). Differing patterns in thermal injury incidence and hospitalisations among 0-4 year old children from England. *Burns*, 42 (7), 1609-1616.
- Ballesteros, M. F., Webb, K., & McClure, R. J. (2017). A review of CDC's Web-based Injury Statistics Query and Reporting System (WISQARS™): Planning for the future of injury surveillance. (2017). *Journal of Safety Research*, 61, 211-215.
- Boon, E. & Kremer, D. (2019). The Giant's House –A safer environment for children in and around the house. *EU Safety: Research for enhancing impact of strategies and actions*. Luxembourg: Luxembourg Institute of Health, EuroSafe, 55.
- Causes of deaths*, 2018. (2019). Vilnius: Institute of Hygiene.
- Ellsäßer, G., Trost-Brinkhues, G., & Albrecht, M. (2014). Prävention von Verletzungen bei kleinen Kindern [Injury prevention in young children]. *Bundesgesundheitsblatt- Gesundheitsforschung – Gesundheitsschutz*, 57(6), 681-686.
- EuroSafe. *Children and adolescents*. Retrieved from: <http://www.eurosafe.eu.com/key-actions/children-adolescents>.
- Hashemi, S. S., Sharhani, A., Lotfi, B., Ahmadi-Juibari, T., Shaahmadi, Z., & Aghaei, A. (2017). *Journal of Burn Care Research*, 38(6), e944-e951.
- Injuries in the European Union, 6th edition*. (2016). Amsterdam: EuroSafe. Retrieved from: http://www.eurosafe.eu.com/uploads/inline-files/EuropeSafe_Master_Web_02112016%20%282%29.pdf.
- Kahrman, I. L. & Karadeniz, H. (2018). Effects of a safety-awareness-promoting program targeting mothers of children aged 0-6 years to prevent pediatric injuries in the home environment: Implications for nurses. *Journal of Trauma Nursing*, 25(5), 327-335.
- Kisser, R. & Bauer, R. (2019). Feasibility of standardized reporting schemes on home and leisure injury risks and relevant safety measures for EU countries. In *EU Safety: Research for enhancing impact of strategies and actions*. Luxembourg: Luxembourg Institute of Health, EuroSafe, 106.
- Kubilius, D., Rimdeika R., & Kazanavicius M. (2012). Trends in the spread of burns in Lithuania in 2001-2010. *Health Sciences*, 22(3), 79-82.
- Lee, C. J., Mahendraraj, K., Houn, A., Marano, M., Petrone, S., Lee, R., & Chamberlain, R. S. (2016). Pediatric burns: A single institution retrospective review of incidence, etiology, and outcomes in 2273 burn patients (1995-2013). *Journal of Burn Care Research*, 37(6), e579-e585.
- McGuire, F., Hegarty, M., Jennings, P., Marsden, P., & Smith, L. (2017). Fancy a cup of scald? – The role of hot beverage burns in paediatric burns admissions in Ireland. *Irish Medical Journal*, 110(6), 583.
- Myhre, M. C., Thoresen, S., Grøgaard, J. B., & et al. (2012). Familial factors and child characteristics as predictors of injuries in toddlers: a prospective cohort study. *BMJ Open*, 2, e000740.
- Ohm, E., Holvik, K., Madsen, C., Alver, K., & Lund, J. (2019). Incidence of injuries in Norway:

- linking primary and secondary care data. *Scandinavian Journal of Public Health*. <https://doi.org/10.1177/1403494819838906>.
- Palmieri, T. L., Alderson, T. S., Ison, D., O'Mara, M. S., Sharma, R., Bubba, A., Coombs, E., & Greenhalgh, D. G. (2008). Paediatric soup scald burn injury: etiology and prevention. *Journal of Burn Care Research*, 29(1), 114-118.
- Seah, R., Holland, A. J. A., Curtis K., & Mitchell, R. (2019). Hospitalised burns in children up to 16 years old: A 10-year population-based study in Australia. *Journal of Paediatrics and Child Health*, 55(9), 1084-1090.
- Sengolge, M., & Vincenten, J. (2013). *Child product safety guide*. Birmingham: European Child Safety Alliance, EuroSafe.
- Sleet, D. A. The global challenge of child injury prevention. (2018). *International Journal of Environmental Research and Public Health*, 15(9), 1921.
- Target Programme for the Prevention of Home and Leisure Accident Injuries 2014-2020. (2014). Helsinki: Ministry of Social Affairs and Health. Retrieved from: http://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/74508/STM_2014_1_tapaturma_eng_web.pdf.
- Tegtmeier, L. C., Herrnstadt, G. R., Maier, S. L., Thamm, O. C., Klinke, M., Reinshagen, K., & Koenigs, I. (2018). Retrospective analysis on thermal injuries in children – Demographic, etiological and clinical data of German and Austrian pediatric hospitals 2006-2015 – Approaching the new German burn registry. *Burns*, 44(1), 150-157.
- Van Zoonen, E., & Baardse, R. (2016). What influences parents of children under 5 years of age to take safety measures. *Injury Prevention*, 22(2), A39.
- WHO (2019). *Burns. Fact sheets*. Retrieved from: <https://www.who.int/news-room/fact-sheets/detail/burns>.

SOCIODEMOGRAPHIC DETERMINANTS FOR RISK EXPOSURE OF CHILD INJURIES AT HOME WITH FOCUS ON BURNS

Summary

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Child injuries at home are a significant public health problem with tremendous burden to family, community, and society. One of the main categories of child fatal and non-fatal injuries in the home environment is burn. Children affected by burns suffer from disability, disfigurement, and long hospitalization.

The survey on child safety at home with focus on burns and sociodemographic factors was performed in 2018-2019 in Lithuania. The parents of kindergarten children responded to the questions given to them about their child. During our study 759 answered and returned questionnaires were analysed (the response rate was 94.88%). SPSS 24 for Windows was used for statistical analysis. The Chi-square test was applied to evaluate the significance of the association between the categorical variables. The significance level $p \leq 0.05$ was considered statistically significant.

Totally 759 children aged 0 to 6 years were investigated: 392/51.6% boys and 367/48.4 girls, 369/48.6% urban and 390/51.4% rural residents, 270/35.6% aged 0 to 3 years and 489/64.4% aged 4 to 6 years, 371/48.9% lived in a private house and 388/51.1% were accommodated in an apartment.

139/18.3% of all the children who participated in the study had burn injuries. 206/27.1% children were injured at home. Burns make up 67.5% of all the injuries in children in the home environment. The survey on child injuries at home revealed that burns occur mainly indoors, in boys, in children aged 4 to 6 years. Most of burns were scalds (injuries affected by hot fluids), occurred in the kitchen and in wintertime. The main locations of the burn were the upper extremities. The study confirmed that sociodemographic determinants play an important role for child safety in the home environment. Preventive activities and actions need to be implemented for enhancing child safety at home. The main ways for prevention, including education, safe environment creation, legislation and enforcement could help to prevent injuries and burns, saving the lives of children – one of the most vulnerable age group.

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